

CONTENTS

Original Articles	PAGES
<i>Clinical Characteristics Of Unresolved Ulcers In Nepalese Population: Experience From A Tertiary Care Center, Kathmandu, Nepal. Shantl Marsh, Ananya Adhikari, Rakul Pathak, Prem K. Khadga, Sashi Sharma</i>	1-5
<i>Gender Differences In Presentation, Management And In-hospital Mortality In St Elevation Myocardial Infarction In A Tertiary Care Center, Biratnagar, Nepal. Hemant Shrestha, Arun Sapkota, Om Mani Adhikari, Chandramoni Prasad, Ratnamani Gajurel, Sanjeev Thapa</i>	6-11
<i>A Comparative Study Of Bone Marrow Aspiration And Bone Marrow Biopsy In Hematological Diseases. Nirajan Malnati, Neha Homagat, Pratap Sagar Thapa, Arun Giri</i>	12-14
<i>Gender Differences In Selection Of Permanent Pacemaker Implantation At Maternity Cardiothoracic Vascular And Transplant Centre, Kathmandu, Nepal. Arjun Khanal, Ratna Raj Pandey, Surya Devkota, Sanjeev Thapa, Anil Shrestha</i>	15-20
<i>Clinico-epidemiological Profile And Outcome Of Poisonous Snake Bites In Children Using The WHO Treatment Protocol In Western Nepal. Karan Hari Pandey, V P Pandey, Rajan Bikram Rajamalli, Shyam Sander Basnet</i>	21-23
<i>Deep Neck Infections Among The Population Attending At Nobel Medical College, Biratnagar. Ravi Bhanjan Sewal, Muralikrishna Basnet, Rabir Acharya, Kamal Parajuli</i>	26-31
<i>Clinical, Biochemical And Virological Profile Of Patients With Chronic Hepatitis C Virus Infection-a Study From University Hospital In Nepal. Dipesh Gurubacharya, Mohan Khadka, Khadga B. Shrestha, Prem Khadga, Sashi Sharma</i>	32-35
<i>Knowledge And Practice Of Stroke Care Among Obstetricians At B.P. Koirala Memorial Cancer Hospital, Kathmandu, Nepal. Sanjaya Baral, Girindra Dhungana</i>	36-45
<i>Lived Experience Of Infertility Among Community Dwelling Infertile Women, Biratnagar, Nepal</i>	46-56
<i>Factors Affecting Health Seeking Behavior Of Senior Citizens Of Dhurans, Dharan, Nepal. Dipendra Rijal</i>	57-63
Case Report	
<i>Endocervical Intraepithelial Neoplasia. Raksha Panta Shrestha</i>	64-65



SUBSCRIPTION CHARGES

	Annual	Per Copy
Nepal:	N.Rs. 200/-	N.Rs. 150/-
SAARC countries:	N.Rs. 200/-	N.Rs. 200/-
Other countries:	US\$ 30/-	US\$ 20/-

Subscription rates can be revised at any time without prior notice. Subscription requests should be sent to the address given below. Subscriptions are to be sent in the form of bank drafts in favor of the "Journal of Nobel Medical College" payable at any bank either in Biratnagar or Kathmandu Nepal.

Address: Journal of Nobel Medical College (JoNMC),
Research and Publication Unit,
Nobel Medical College,
Kanchanbari, Biratnagar-5, Morang, Nepal.

© All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior permission of the Chief Editor/Co-editor.

Editorial correspondences:

Dr. Naba Raj Koirala

Chief-Editor

Journal of Nobel Medical College (JoNMC)

Nobel Medical College Teaching Hospital

Phone: 00977-21-460736 (Office)

Mobile: 9841318315 (Cell Phone)

Fax: 00977-1-460624

E-mail: dmabaraj@yahoo.com

Research and Publication Unit

NOBEL MEDICAL COLLEGE

Kanchanbari, Biratnagar-5,

Morang, Nepal

Ph No: 00977-21-460735, 461736

Fax No: 00977-21-460624

Published by:

The Journal of Nobel Medical College (JoNMC) is published biannually by the Research and Publication Unit of Nobel Medical College, Biratnagar. The JoNMC publishes original articles in the field of Medicine and allied sciences. Contributions are accepted for publication on the condition that their substance has not been published or submitted for publication elsewhere.

The JoNMC does not hold itself responsible for statements made by contributors. Published articles become the property of the JoNMC and cannot be published elsewhere, in full or in part, without the written permission of the Editor.

Articles are invited for following sections: Review article, Original Research Articles, Case Reports, Brief Communications & Letters to Editor.

All the articles except Letters to Editors will be peer reviewed.

Published by:

Research and Publication Unit

NOBEL MEDICAL COLLEGE

KANCHANBARI, BIRATNAGAR-5, MORANG, NEPAL

Ph.No.: 00977-21-460735; 461736

Fax No.: 00977-21-460624

INSTRUCTIONS TO CONTRIBUTORS

Two high-quality copies should be submitted and authors should keep one copy for reference. Articles should not be more than 5000 words long, must be typed on one side of the paper only, double-spaced throughout (including references and tables) and with wide margins. All the pages, including the title page, must be numbered. Submission of the manuscript also on writable Compact disks is preferable. The authors are requested to submit their article without formatting and the text must be typed using Times New Roman, Font 12.

Full Length Original Articles/Review article:

The **first page** should contain the full title of the article, name (s) of the author (s), in the order that is wished for publication, with their degrees, affiliations and complete addresses (specify the name and address for correspondence) and a running title not exceeding 5 words.

The **second page** should contain the full title (without the name of the authors), abstract not exceeding 200 words, and three to ten key words. The abstract should clearly describe the aim of the study, important findings and implications.

The **text should begin from page 3** under the headings: Introduction, Material and Method, Results and Discussion.

References and Appendix should follow on separate pages. Each table should be on separate page, numbered with Arabic numerals and provided with a short descriptive title. The findings of the tables should not be repeated in the text.

Case Reports and Brief Communications:

These should be brief not more than **1000 words in length with a maximum of 10 references.** First page and second page (with abstract) should be same as for full-length articles.

Letters to Editor:

The maximum permissible length for letters is **500 words with a maximum of 5 references;** tables and figures cannot be used. Letters can be in reference to articles published in this journal, or any other significant matter.

References:

These should be cited in the text by surname of first author and year of publication. Vancouver system. On the page of References, they should be arranged in alphabetical order of first author. References should consist of names and initials of all authors, publication year, and title of the paper, full name of the periodical, volume, and first and last page numbers.

(JoNMC)

Journal of Nobel Medical College

Patrons

Mr. Lok Nath Neupane

Chairman

Nobel Medical College, Biratnagar, Nepal

Dr. Sunil Sharma (Neupane)

Managing Director

Nobel Medical College, Biratnagar, Nepal

Dr. Bhogendra Upadhaya

Chief-Executive Officer

Nobel Medical College, Biratnagar, Nepal

Editorial Advisors

Professor J. N. Bhagawati

Principal

Nobel Medical College, Biratnagar

Dr. Bishwa Nath Adhikari

Hospital Director

Nobel Medical College, Biratnagar

Editorial Board

Chief Editor

Dr. Bijay Thapa

Lecturer

Department of Community Medicine

Nobel Medical College, Biratnagar

Co-Editor

Dr. Dharendra K Giri

Assistant Professor

Department of Periodontics

Nobel Medical College, Biratnagar

Members Editorial Board

Dr. Sita Pokhrel (Ghimire)

Assistant Professor

NMCTH, Biratnagar

Dr. Prakash Sitoula

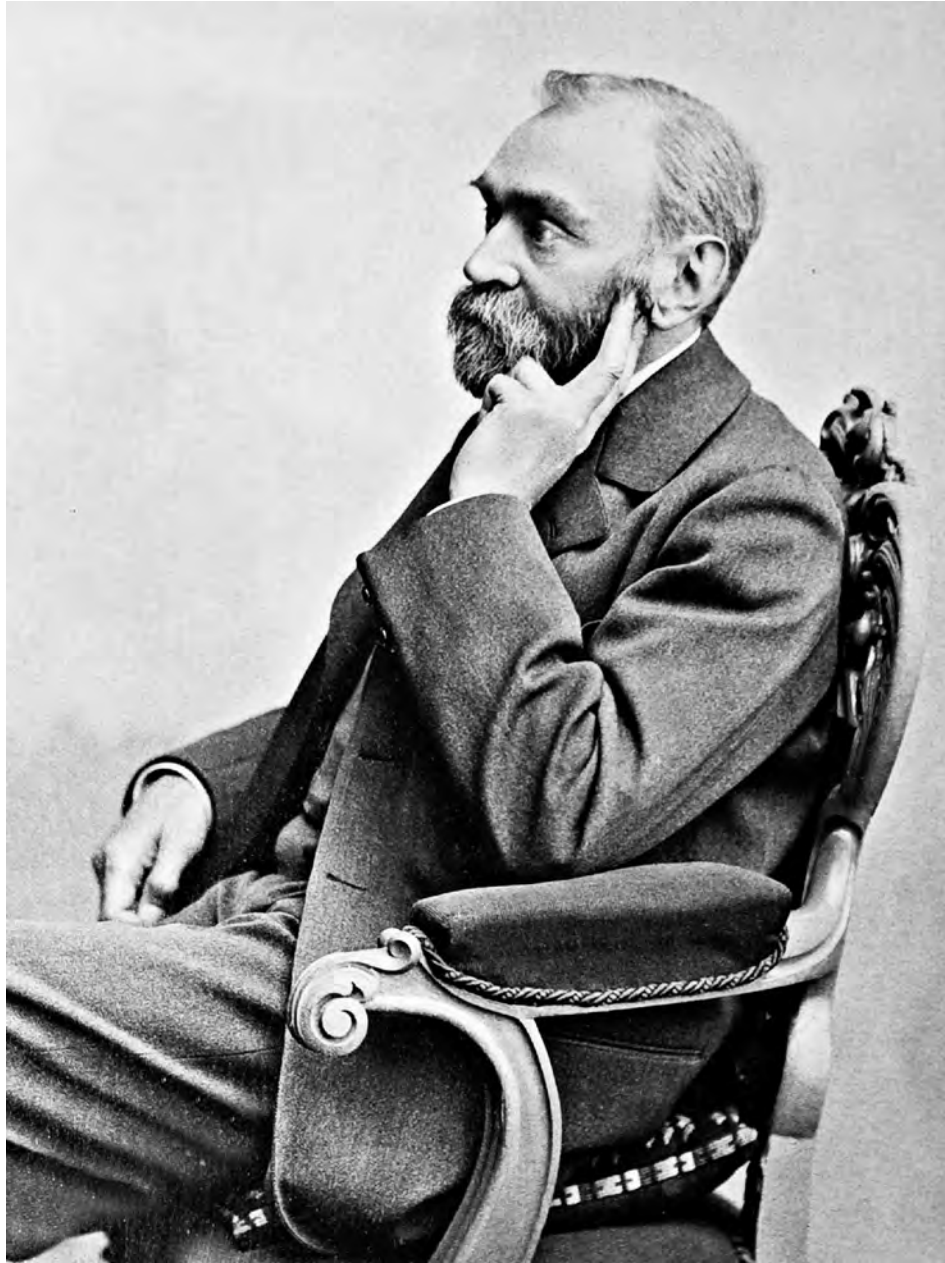
Lecturer

NMCTH, Biratnagar

Editorial Office

Research and Publication Unit. **Nobel Medical College**, Kanchanbari, Biratnagar-5, Nepal

Phone: 021-461735, 460736. Fax: 021-460624 E-mail: drnabaraj@yahoo.com



ALFRED BERNHARD NOBEL

Alfred Bernhard Nobel was a Swedish chemist, engineer, innovator, and armaments manufacturer. He was the inventor of dynamite.

Born: October 21, 1833, Stockholm

Died: December 10, 1896, Sanremo

CLINICAL CHARACTERISTICS OF ULCERATIVE COLITIS IN NEPALESE POPULATION: EXPERIENCE FROM A TERTIARY CARE CENTER TUTH, KATHMANDU, NEPAL

Shaneel Harsh, Ananya Adhikari, Rahul Pathak, Prem K. Khadga, Sashi Sharma

ABSTRACT

Background and Aim: Rising incidence and prevalence of ulcerative colitis (UC) had been observed in Asian countries. We conducted a study in our center, aiming to describe the demographic and clinical characteristics of UC in Nepalese population.

Method: This is a cross sectional study of patients with diagnosis of UC in our hospital from Feb 2014 to Jan 2015. The diagnosis of UC has to satisfy the internationally accepted criteria. All patients were Nepalese and Clinical and epidemiological data were obtained and analysed through SPSS version 20.

Results: 60 patients were included in the study. Mean age at diagnosis was 34.6 years. Male had slight preponderance with M:F (1.06:1). Mean duration of disease at diagnosis was 3.7 years. 83% had rectal bleed, Diarrhoea was seen in 77.3%, Tenesmus and Urgency in 70%, Mucus in stool was found in 65%, abdominal pain in 55%. 16.7% had weight loss and extraintestinal manifestations whereas fever was seen in 8.3%. In our patients 38.3% had ulcerative proctitis and 50% had left-sided UC, whereas 11.7% had extensive UC at presentation. The majority presented with mild (53.3%) or moderate (38.3%) disease activity, only 8.3% with severe disease.

Conclusions: The peak age of UC was similar to other Western and Asian countries but second peak reported in western countries have not been seen in this study. This finding is similar to reports from East Asia. Similarly the proportion of patients with extra intestinal manifestations was low in our study as compared to studies reported from western world. Our study also showed that it takes longer to diagnose UC in Nepal. This might be related to the unawareness of the patients' and lack of availability of the diagnostic resources.

Key Words: *Ulcerative Colitis, Epidemiology, Nepal*

INTRODUCTION

Ulcerative colitis (UC) is an inflammatory disorder of the colon of unknown etiology. UC begins in the rectal mucosa, extends proximally to involve varying portions of the bowel, and has a variable clinical course; including unpredictable relapses and remissions. It is a worldwide disorder with

significant geographical heterogeneity, the highest prevalence rates having been reported from Northern and Western Europe and North America.² A significant North-South gradient has also been observed in the prevalence of the disease, with rates being higher in Northern countries.

Ulcerative colitis has been viewed from various studies in the past as being rare in developing countries of the world, including Asia. However, recent epidemiological experience is changing these premises. The reason for this rising trend is not clear.

Although it may be related to the improved physician awareness of UC and better availability of diagnostic modalities, many people attribute this to the increasing affluence of many Asian countries leading to Westernization of lifestyle and changing of eating habits. This hypothesis of westernization leading to UC is supported by the strongest evidence which comes from epidemiological studies of Asian immigrants to Western countries. For instance, Chinese immigrants to Canada have been found to have higher incidence of UC than people in Hong Kong. Similarly, first-generation Indian immigrants to the United Kingdom have higher chance of developing UC than people in India.

Despite the rising incidence and prevalence of this condition in Asian countries, the data regarding this disease in Nepalese patients with UC are relatively few or none and it may be different from our Western counterparts. So, we conducted this study in our centre, aiming to describe the clinical characteristics and natural history of Nepalese patients with UC.

MATERIALS AND METHODS

All patients presenting with Ulcerative Colitis to the Outpatient department or admitted in the Department of Gastroenterology, Tribhuvan University Teaching Hospital, and Kathmandu in the study period of one year (Feb 2014 to Jan 2015) were included in the study.

UC was definitively diagnosed in those who met all 3 of the below criteria used for determining UC:

- (1) A typical history of diarrhoea or blood and pus in the stool, or both, for longer than 4 weeks;
- (2) A typical sigmoidoscopic or colonoscopic picture with diffusely granular, friable, or ulcerated mucosa without rectal sparing or skip lesions of characteristic continuous ulcerated mucosa; and
- (3) Characteristic histopathological signs of inflammation on biopsy.

The following data from each patient were retrieved for analysis:

- (i) sex (ii) age at diagnosis (iii) duration of disease (iv) presenting symptoms (v) smoking status (vi) family history of UC (vii) extent of colitis (viii) severity of disease at diagnosis (ix) extraintestinal manifestations. Extent of colitis was assessed by the first-time colonoscopy and was classified as ulcerative proctitis (E1), left-sided UC (E2), and extensive UC (E3) according to the Montreal classification of IBD. The disease severity was classified clinically according to Truelove and Witts criteria as mild, moderate, severe and fulminant colitis.

Statistics

All the data were collected as per standard prespecified Performa and all statistical analysis were performed with Statistical Package for Social Sciences version 20.0 software.

RESULTS

60 patients had been managed in the Department of Gastroenterology during the study period. All of them were Nepalese. 31 patients were male and 29 patients were female. (M: F= 1.06:1). The mean age at diagnosis was 34.6 years with standard deviation of 12.7 years.

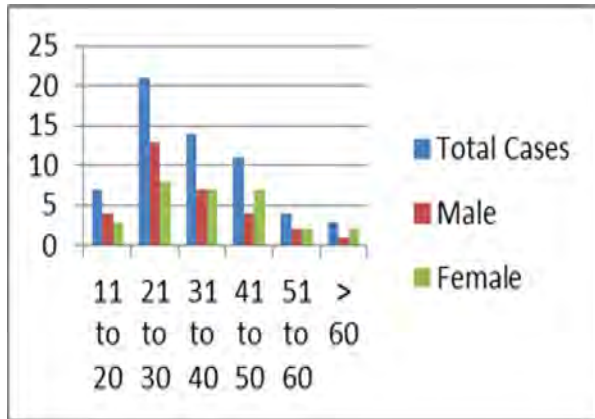


Fig. 1: Demographic distribution of Patients according to the age

The mean duration of illness at diagnosis was 3.7 years and standard deviation of 4.87 years. 88.3% (n=53) of the patients had per rectal bleed and 77.3% (n=44) had Diarrhoea as their presenting complain. Other complains like tenesmus and urgency were present in 70% (42), Mucus in stool 65% (n=39), Abdominal Pain in 55% (n=33), Weight Loss in 16.7% (n=10), Extra Intestinal Manifestation in 16.7% (n=10), and Fever was seen only in 8.3% (n=5)

Table: 1 Symptoms at Diagnosis

Symptom	No. (%)
Rectal bleeding	53 (88.3)
Diarrhoea	44 (77.3)
Tenesmus	42 (70.0)
Urgency	42 (70.0)
Mucoid stool	139 (65.0)
Abdominal pain	33 (55.0)
Weight loss	10 (16.7)
Fever	05 (8.3)

At presentation 38.3% (n=23) had proctosigmoiditis, 50% (n=30) left sided colitis and pancolitis was seen in 11.7% (n=7).

53.3% patients had mild disease, 38.3% and 8.3 % presented with moderate to severe disease. 3.33% (n=2) had to undergo surgical therapeutic colectomy.

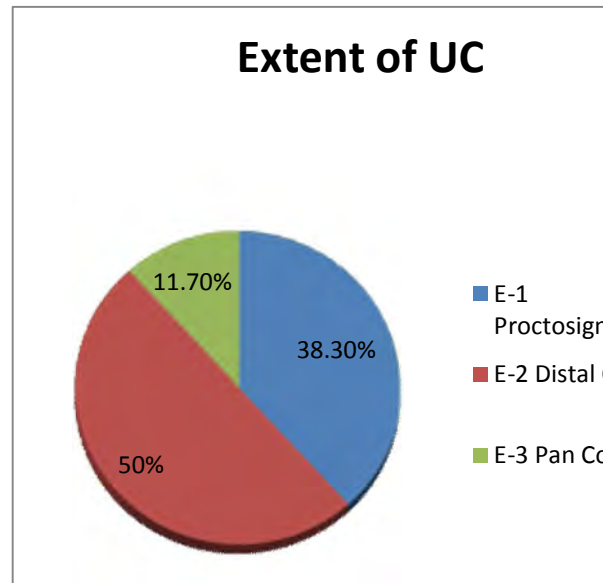


IMAGE 2: Extent of disease

At presentation Positive family history was seen in only 1.66% (n=1) and this was present in his first degree relative (sister). 10% (6) of the patients were current smoker whereas 13.33% (8%) were ex-smokers.

Majority (86.7%), of the patients had clinical course of Chronic Intermittent type. Other two types were present with Chronic Continuous in 10%) and Acute Fulminant in 3.3%.

DISCUSSION

Ulcerative colitis should no longer be considered as a disease of Western countries. A number of studies showed that there is a rising prevalence of this disease across Asian countries.

The present study identified few important pieces of demographic information. The peak age of onset for UC was similar but in comparison to reports from western countries there was no bimodal distribution seen. This finding had similarity with the Chinese study from Hongkong^{20,21,22}

There is slight male preponderance (M: F= 1.06:1). The presence of a family history for UC in our study was found to be lower than that reported from western countries and only few patients were smokers (current smokers

10%, ex-smokers 13.3%). Both of these data are similar to reports from China and Turkey but still does not have an appropriate explanation.^{22,23}

In this study Extra-intestinal manifestations was found to be present only in 16.6%, which is similar to other Asian studies but far less than reported in studies from the Western countries (>50% patients in one study).^{24,25,26}

The extent of disease in this study was not different from the previous studies of Asia and Western countries.²⁰ Along with this other clinical features like blood in stool, mucus in stool, abdominal pain, tenesmus, urgency, abdominal pain also very much similar to western reports.²⁷ But not a single patient in this study had constipation which differs from reports of our western counterpart and this findings resembles the reports from east asia.²⁸

Another significant result of this study is the relatively longer times of untreated disease of UC. Mean duration of disease at diagnosis was 3.7 years. There may be several explanations for this fact. First, non-specific initial symptoms of UC might be underrated by the patients. Secondly, higher prevalence of infectious diseases and common disorders such as haemorrhoids may have resulted in misdiagnosis of the disease. Thirdly, the negative attitudes of patients towards endoscopic procedures and lack of availability of the diagnostic facilities might also have resulted in the delay of the diagnosis.

CONCLUSIONS

The peak age of UC was similar to other Western and Asian countries but second peak reported in western countries have not been seen in this study. This finding is similar to reports from East Asia. Similarly the proportion of patients with extra intestinal was low in our study as compared to studies reported from western world.

Our study also showed that it takes longer to diagnose UC in Nepal. This might be related

to the unawareness of the patients' and lack of availability of the diagnostic resources.

References

- 1) **Katz J.** The course of inflammatory bowel disease. *Med Clin North Am.* 1994;78:1275–1280.
- 2) **Whelan G.** Epidemiology of inflammatory bowel disease. *Med Clin North Am* 1990;74: 2
- 3) **Farrokhyar F, Swarbrick ET, Irvine EJ** A review of epidemiology studies in inflammatory bowel disease. *Scand J Gastroenterol* 2001;36:2–15.
- 4) **Loftus EV, Schoenfeld P, Sandborn WJ.** The epidemiology and natural history of Crohn's disease in population based patient cohort from N America: a systematic review. *Aliment Pharmacol Ther* 2002;16:51–60.
- 5) **Yang SK, Edward Loftus Jr, Sandborn William J.** Epidemiology of Inflammatory bowel disease in Asia. *Inflamm Bowel Dis* 2001;7:260–70.1–12.
- 6) **Hossain J, Al-Faleh FZ, Al-Mofleh I, et al.** Does ulcerative colitis exist in Saudi Arabia? Analysis of thirty-seven cases. *Saudi Med J* 1989;10:360-62
- 7) **Chuan H, Freeman HJ.** Ulcerative colitis in the Chinese population of Vancouver, British Columbia. *Can. J. Gastroenterol.* 1994; 8: 303–7.
- 8) **Probert CS, Jayanthi V, Pinder D et al.** Epidemiological study of ulcerative proctocolitis in Indian immigrants and the indigenous population in Leicestershire. *Gut* 1992; 3: 687–93.
- 9) **Yang SK, Hong WS, Min YI, et al.** Incidence and prevalence of ulcerative colitis in the Songpa-Kangdong District, Seoul, Korea, 1986-1997. *J Gastroenterol Hepatol.* 2000;15:1037–1042.
- 10) **Tysk C, Jarnerot G.** Ulcerative proctocolitis in Orebro, Sweden. A retrospective epidemiologic study, 1963–1987. *Scand J Gastroenterol.* 1992;27:945–950.
- 11) **Garland CF, Lilienfeld AM, Mendeloff AI, et al.** Incidence rates of ulcerative colitis and Crohn's disease in fifteen areas of the United States. *Gastroenterology.* 1981;81:1115–1124.
- 12) **Binder V, Both H, Hansen PK, et al.** Incidence and prevalence of ulcerative colitis and Crohn's disease in the County of Copenhagen, 1962 to 1978. *Gastroenterology.* 1982;83:563–568
- 13) **Satsangi J, Silverberg MS, Vermeire S, Colombel JF.** The Montreal classification of inflammatory bowel disease: controversies, consensus and implications. *Gut* 2006; 55: 749–53.
- 14) **Truelove SC, Witts LJ.** Cortisone in ulcerative colitis. Final report on a therapeutic trial. *BMJ* 1955; 2: 1041–5.

- 15) **Ouyang Q, Tandon R, Goh KL et al.** The emergence of inflammatory bowel disease in the Asian Pacific region. *Curr. Opin. Gastroenterol.* 2005; 21: 408–13.
- 16) **Jiang XL, Cui HF.** An analysis of 10 218 ulcerative colitis cases in China. *World J. Gastroenterol.* 2002; 8: 158–61.
- 17) **Jiang L, Xia B, Li J et al.** Retrospective survey of 452 patients with inflammatory bowel disease in Wuhan city, central China. *Inflamm. Bowel Dis.* 2006; 12: 212–17.
- 18) **Yang SK, Hong WS, Min YI et al.** Incidence and prevalence of ulcerative colitis in the SongpaKangdong District, Seoul, Korea, 1986–1997. *J. Gastroenterol. Hepatol.* 2000; 15: 1037–42.
- 19) **A Sood, V Midha, N Sood, et al.** Punjab, North India. Incidence and prevalence of Ulcerative Colitis. *Gut* 2003 52: 1587-1590
- 20) **Hanauer SB.** Inflammatory bowel disease: epidemiology, pathogenesis, and therapeutic opportunities. *Inflamm Bowel Dis* 2006; 12 (Suppl 1): S3–S9.J.

Correspondence Address: Dr. Shanel Harsh, DM Residence IOM Kathmandu, Nepal E-mail: drshanelharsh@gmail.com

GENDER DIFFERENCE IN PRESENTATION, MANAGEMENT AND INHOSPITAL MORTALITY IN ST ELEVATION MYOCARDIAL INFARCTION IN A TERTIARY CARDIAC CENTER

Hemant Shrestha, Arun Sayami, Om Murti Anil, Chandramani Poudel, Ratnamani Gajurel, Sanjeev Thapa

ABSTRACT

Background: Studies have shown that women are less likely to receive reperfusion therapy and have higher inhospital death in ST Elevation myocardial infarction(STEMI) as compared to men. This study aims to examine presentation, acute therapy, and inhospital mortality in women admitted with diagnosis of acute STEMI in a tertiary care cardiac center.

Methods: Patients admitted with diagnosis of acute STEMI from 1st June 2013 to 31st May 2015 were included in the study. Gender difference in baseline characteristics, comorbidities, prehospital delay, type of treatment received and inhospital death were measured. Variables that might have impact on inhospital deaths were analyzed on multivariate regression analysis to find out other variables adjusted effect of gender on inhospital deaths.

Results : Majority of the patients were men (Men 69% vs women 31%). Women were older, were more likely to be diabetics and smoker. Prehospital delay was more in women (women 22 hours vs men 12 hours, p value-0.02).About 46% of both men and women received reperfusion therapy. There was more inhospital mortality in women (women 13.5% vs men 6.5%, p value – 0.02). Women had more inhospital mortality even after adjustment with other covariables (OR = 3.110, 95% CI = 1.411-6.902, p value-0.005).

Conclusion : Women were more likely to be elderly, diabetics, smoker and presented later than men after symptoms onset. Women received reperfusion therapy similar to that of men. After adjustment with other covariates, women remained a significant variable to inhospital death.

Key Words: *Gender difference, ST elevation myocardial infarction, prehospital delay, reperfusion therapy, inhospital mortality.*

INTRODUCTION

Coronary artery disease is the leading cause of death in both men and women worldwide.¹ Number of studies has shown that there is gender difference in presentation, management and outcome in acute coronary syndrome.²⁻⁶ Some studies have shown that females are less likely to receive reperfusion therapy in ST Elevation myocardial

infarction(STEMI) as compared to males.^{2,3} Other studies report that women who present with acute myocardial infarction have worse in-hospital and long-term prognoses than men.⁴⁻⁶ It is uncertain whether these differences reflect differences in base-line characteristics or pathophysiologic distinctions between men and women.⁷

Part of the difference in mortality between gender is accounted for by the older age of and higher prevalence of comorbidities in women.⁵ Less frequent use of revascularization procedures in women also may account for some of the excess mortality. Findings from large database studies^{6, 8-10} have indicated that women with acute myocardial infarction tend to undergo less aggressive hospital management than men. The aim of this study was to examine presentation, acute therapy, and inhospital mortality in women as compared to men admitted with diagnosis of acute STEMI in a tertiary care cardiac center.

METHODS

All admitted patients both male and female diagnosed as acute STEMI in Department of Cardiology, Manmohan Cardiothoracic Vascular and Transplant center(MCVTC), Kathmandu, were enrolled in the study. The study period was from 1st June 2013 to 31st May 2015. Acute STEMI was diagnosed on the basis of third universal definition of myocardial infarction.¹¹ STEMI was defined by characteristic symptoms of myocardial ischemia in association with persistent electrocardiographic (ECG) ST elevation and subsequent release of biomarkers of myocardial necrosis. ECG criteria for ST elevation : New ST elevation at the J point in at least 2 contiguous leads of ≥ 2 mm (0.2 mV) in men or ≥ 1.5 mm (0.15 mV) in women in leads V2–V3 and/or of ≥ 1 mm (0.1 mV) in other contiguous chest leads or the limb leads.¹¹ . Baseline demographic data and a complete clinical history were taken from each patient. Past medical history, drug history, smoking and alcohol intake history was taken. General and systemic examination of the patient was done. Comorbid conditions included hypertension, diabetes mellitus, renal dysfunction, dyslipidemia, stroke and smoking. Prehospital delay was defined as the time between onset of STEMI and hospital

arrival. Killip class of each patient was recorded at presentation.¹²

Patients were tried to be treated under guidelines given by ACC/AHA in 2013.¹³ Depending upon the time duration at which patients presented, there were three groups of patients: primary PCI, thrombolysis and conservative management. Primary PCI was performed in those patients presenting within 12 hours of symptoms onset, evidence of ongoing ischemia within 12-24 hours of symptoms onset and presenting in cardiogenic shock irrespective of duration of symptoms. If patients didn't give consent for PCI, then either thrombolysis was performed or was kept in conservative management. Thrombolysis was performed with streptokinase or tenecteplase in patients presenting within 12 hours and evidence of ongoing ischemia 12-24 hours of symptom onset. Patients presenting after 24 hours and not in cardiogenic shock were managed conservatively with medications.

The outcome variable was death during index hospital admission.

STATISTICAL ANALYSIS

Statistical analysis was performed with SPSS version 20. For demographic profile, frequency and percentage distribution were obtained for each variable. Data were expressed as mean \pm SD for continuous variables and as percentage for categorical variables. For continuous variables, differences between groups were compared with independent t-test. The frequencies of categorical variables in 2 populations were compared by chi-square test and by calculating the odds ratios (OR) and 95% confidence intervals (CI). Variables influencing inhospital mortality were assessed first with the aid of univariate regression analysis. Multivariable logistic-regression model was used to determine, after adjusting

for base-line differences, the effect of sex on the rates of mortality.

RESULTS

Characteristics	Men (n=246, 69%) n(%) / mean ± s.d	Women (n=111, 31%) n(%) / mean ± s.d	p value
Age	56.9 ± 11 years	63 ± 12 years	0.001
>60 years	91(37%)	63(56.7%)	0.001
Median duration of presentation	12 hours	22 hours	
<12 hours	127(51%)	38(34%)	0.02
Hypertension	146(59%)	63(56%)	0.308
Diabetes	64(26%)	47(42%)	0.00

Table 1: Baseline characteristics, management and mortality of patients

Baseline Characteristics

A total of 356 patients were enrolled in the study. More than two third of the patients were men (69% vs 31%). Mean age of women were about 6 years more than that of men (63 vs 56.9 yrs). Smoking and history of diabetes were more prevalent in women.

Prehospital delay

Both men and women had long prehospital delay. Median duration of presentation to hospital after symptoms onset was 10 hours more in women. More than fifty percent of men presented within 12 hours of symptoms onset while only one third of women presented within 12 hours of symptom onset.

Management

Overall less than fifty percent of patients received reperfusion therapy. Reperfusion was similar in both men and women (men 46.4%, women 46.8%). Both groups received primary PCI equally (men 26.4%, women 27%). Among patients who presented within 12 hours, the rate of

Management	Men (n=246, 69%) n(%) / mean ± s.d	Women (n=111, 31%) n(%) / mean ± s.d	p value
Dyslipidemia	126(51%)	57(51%)	0.98
Renal dysfunction	24(9%)	9(8%)	0.6
Smoking	86(35%)	57(51%)	0.03
Killip class >I at presentation	83(33%)	36(32.4%)	0.8
Management			0.9
Primary PCI	65(26.4%)	30(27%)	
Thrombolysis	49(20%)	22(19.8%)	
Conservative management	132(53.6%)	59(53.1%)	
Inhospital deaths	16(6.5%)	15(13.5%)	0.029

reperfusion therapy was similar in both groups. (Men 87%, women 90%).

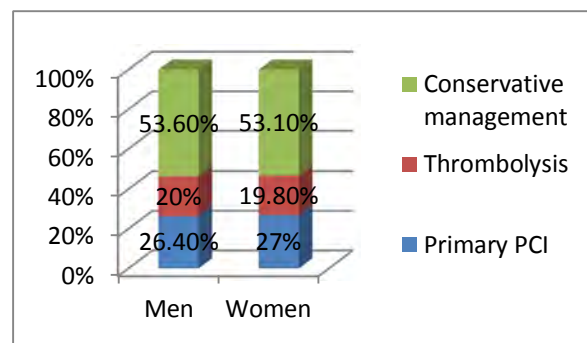


Fig 1: Management of patients

Inhospital mortality

Overall inhospital death was 8.7%. Inhospital death was more than two times in women than in men (13.5% vs 6.5%, p value-0.02). Besides sex, nine other variables (duration of presentation > 12 hours, age > 60 years, hypertension, diabetes, dyslipidemia, renal dysfunction, smoking, killip class at presentation > I and lack of reperfusion therapy) were assessed in univariate analysis with outcome as inhospital death. Women, DOP > 12 hours, age > 60 years and Killip

class at presentation >I were variables that have significant effect on inhospital deaths. After adjusting these variables in multivariate analysis, women were still a significant variable that have impact in inhospital death (p value 0.005). Beside women, only Killip class > I had adjusted significant impact on inhospital death.

Variables	OR	95% CI of OR	p value
Female Sex	2.24	1.06-4.725	0.02
Duration of presentation >12 hours	2.243	1.002-5.019	0.04
Age > 60 years	2.605	1.209-5.016	0.015
Hypertension	1.12	0.734-1.709	0.598
Diabetes Mellitus	1.369	0.939-1.994	0.102
Dyslipidemia	1.564	0.735-3.320	0.245
Renal dysfunction	2.047	0.729-5.747	0.174
Smoking	1.671	0.758-3.499	0.173
Killip Class>I	4.886	2.219-10.578	0.001
Lack of reperfusion therapy	0.984	0.640-1.513	0.9

Table 2: Univariate analysis of different variables on inhospital mortality.

Variables	OR	95% CI of OR	p value
Female sex	3.110	1.411-6.902	0.005
Killip class >I	5.515	2.46-12.36	0.001

Table 3: After multivariate analysis of effects of different variables on inhospital mortality

DISCUSSION

More than two third of the patients were men. It was similar to a registry in Germany, Heer T. found that men were predominant (70%) than women.⁶ Men were also predominant in studies conducted in Nepal. In Kathmandu, men were 82%,¹⁴ in Pokhara 51.7%¹⁵ and in the Western Nepal ACS registry 62.3%.¹⁶

Women were about 6 years older than men. This finding was also similar to other studies internationally and in Nepal.^{4, 6,15-17} In accordance to other studies^{4, 6,17-18} diabetes was more common in women. But in study conducted in Pokhara, Parajuli M found that diabetes was more common in men (15% vs 10%). Overall smoking was highly prevalent(40%) in our study in both gender. It is similar to other studies where it varied from 55-80%^{4,14-16} In contrast to other studies,^{4,15} smoking was more prevalent in women as compared to men (51% vs 35%, p value 0.03). This shows higher prevalence of smoking in women with STEMI and as this is one of the major risk factor for CAD, every effort should be applied so as to help quit smoking. Besides these, there were no significant difference in hypertension, dyslipidemia, renal dysfunction and Killip Class>1 at presentation between men and women.

The median prehospital delay was 16 hours. Only half of the men and one third of the women presented within 12 hours of symptoms onset. This is quite high as compared to other studies. The median PHT is 3.5 hours in the USA and 2.5 hours in the United Kingdom, but 4.4 hours in South Korea and 4.5 hours in Japan¹⁹ and in India 5.3 hours.²⁰ The median prehospital delay in our study was even more in women (22 hours vs 12 hours, p value 0.02). The outcome of treatment is directly dependent upon the early reperfusion therapy, longer prehospital delay have poorer outcome.¹³ The cause of longer prehospital delay should be studied moreover in women so as to decrease prehospital delay and to achieve better outcome.

With regard to reperfusion treatment, only 46.6% of the patients received reperfusion therapy overall. Women received reperfusion therapy equally to men in our study (46.8% vs 46.4%). Primary PCI(27% vs 26.4%)and thrombolysis(19.8% vs 20%) was also similar. This is in contrast to other studies

where women were less likely than men to undergo intravenous thrombolysis and invasive cardiac reperfusion procedures.^{6,22} In MITRA registry 48.6% of women received reperfusion therapy as compared to 62.5% of men.⁶ This study shows that women received reperfusion therapy equal to men.

Consistent with most previous investigations,^{6,22-23} women in our study had a higher risk for hospital death after STEMI than men (13.5% vs 6.5%, *p* value 0.02). The Global Utilization of Streptokinase and t-PA for Occluded Coronary Arteries-I (GUSTO-I) angiographic study found gender to be an independent predictor of 30-day mortality after adjustment for clinical variables.²⁴ In the Myocardial Infarction Triage and Intervention Trial (MITI) registry, Kudenchuk PJ found that female gender independently predicted almost a doubling of hospital mortality.²⁵ After adjusting for age and in combination with other variables, including clinical risk factors and acute reperfusion strategies, we still found a gender difference in hospital mortality, with higher mortality rates in women (*p* value - 0.005). The cause of increased mortality in women can be attributed to older age, more comorbid conditions and delayed presentation to hospital.

LIMITATIONS

The data represents from only one center in Nepal, so its results cannot be generalized to rest of country. Many of the patients were referred from other hospitals which might be the reason for longer prehospital delay. Patients who expired in emergency room and who were not admitted were not included in the study.

CONCLUSION

More than two third of the patients were men. Women were likely to be diabetic and smokers. Women presented to hospital significantly later than men after symptom

onset. Women received reperfusion therapy similar to that of men. Inhospital mortality was more in women. Women and Killip class at presentation >I were significant predictor of inhospital death after adjustment with other variables.

REFERENCES

1. **Roger VL, Go AS, Lloyd-Jones DM, et al**, for the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2012 update: a report from the American Heart Association. *Circulation* 2012;125:e2–220.
2. **Radovanovic D, Erne P, Urban P, et al**. Gender differences in management and outcomes in patients with acute coronary syndromes: results on 20,290 patients from the AMIS Plus Registry. *Heart* 2007;93:1369-75.
3. **Ayanian JZ, Epstein AM**. Differences in the use of procedures between women and men hospitalized for coronary heart disease. *N Engl J Med* 1991;325:221-5.
4. **Akhter N, Milford-Beland S, T. roe M et al**. Gender differences among patients with acute coronary syndromes undergoing percutaneous coronary intervention in the American College of Cardiology-National Cardiovascular Data Registry (ACC-NCDR). *Circulation*. 2007;115:833-839.
5. **Vaccarino V, Krumholz HM, Berkman LF, Horwitz RI**. Sex differences in mortality after myocardial infarction: is there evidence for an increased risk for women? *Circulation* 1995;91:1861–1871.
6. **Heer T, Schiele R, Scheider S et al**. Gender Differences in Acute Myocardial Infarction in the Era of Reperfusion (The MITRA Registry). *Am J Cardiol* 2002;89:511–517.
7. **Hochman JS, Tamis JE, Thompson TD et al**. Sex, Clinical presentation, and outcome in patients with Acute Coronary syndromes. *N Engl J Med* 1999;341:226-32.
8. **Hanratty B, Lawlor DA, Robinson MB, Sapsford RJ, Greenwood D, Hall A**. Sex differences in risk factors, treatment and mortality after acute myocardial infarction: an observational study. *J Epidemiol Community Health*. 2000;54:912–916.
9. **Barakat K, Wilkinson P, Suliman A, Ranjadayalan K, Timmis A**. Acute myocardial infarction in women: contribution of treatment variables to adverse outcome. *Am Heart J*. 2000;140:740–746.
10. **Chandra NC, Ziegelstein RC, Rogers WJ, Tiefenbrunn AJ, Gore JM, French WJ, Rubison M**. Observations of the treatment of women in the United States with myocardial infarction: a report from the National Registry of Myocardial Infarction-I. *Arch Intern Med*. 1998;158:981–988.
11. **Thygesen K, Alpert JS, Jaffe AS, et al**. Third universal definition of myocardial infarction. *Circulation*. 2012;126:2020–35.

12. **Killip T, Kimball JT** . Treatment of myocardial infarction in a coronary care unit. A two year experience with 250 patient. *Am J Cardiol* 1967. 20 (4): 457–64.
13. **O’Gara PT, Kushner FG, Deborah D et al.** 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation*. 2013;127:e362-e425.
14. **Adhikari CM, Bhatta YD, Malla R et al.** Outcomes of Primary Percutaneous Coronary Intervention at Shahid Gangalal National Heart Centre, Kathmandu, Nepal. *Journal of Advances in internal Medicine*. 2012;2(1):6-9.
15. **Parajuli M, Maskey A, Kohli S C, Shrestha UK** . Gender Difference in Frequency of Conventional Risk Factors in Patients with Acute Coronary Syndrome Admitted in Manipal Teaching Hospital, Pokhara, Nepal. *Nepal Journal of Medical Sciences*. 2012;1(1):31-34.
16. **Paudel B, Paudel KL.** Western Nepal acute coronary syndrome (WestNP-ACS) registry: Characteristics, management and in- hospital outcome of patients admitted with acute coronary syndrome in western Nepal. *Journal of GMC-Nepal*. 2009;2(3):51-59.
17. **Milcent C, Dormont B, Durand-Zaleski I et al.** Gender Differences in Hospital Mortality and Use of Percutaneous Coronary Intervention in Acute Myocardial Infarction Microsimulation Analysis of the 1999 Nationwide French Hospitals Database. *Circulation*. 2007;115:833-839.
18. **Butt Z, Shahbag U, Hashmi AT, et al.** Frequency of conventional risk factors in patients with acute coronary syndrome in males and females. *ANNALS* 2010;16:55-8.
19. **McKinley S, Dracup K, Moser DK, et al.** International comparison of factors associated with delay in presentation for AMI treatment. *Eur J Cardiovasc Nurs*. 2004;3:225–230.
20. **Malhotra S, Gupta M, Chandra KK, Grover A, Pandhi P.** Prehospital delay in patients hospitalized with acute myocardial infarction in the emergency unit of a North Indian tertiary care hospital. *Indian Heart Journal* .2003; 55(4):349-353.
21. **Vaccarino V, Rathore SS, Wenger NK et al.** Sex and Racial Differences in the Management of Acute Myocardial Infarction, 1994 through 2002. *N Engl J Med* 2005;353:671-82.
22. **Malacrida R, Genoni M, Maggioni AP, Spataro V, Parish S, Palmer A, Collins R, Moccetti T,** for the third International Study of Infarct Survival collaborative group. A comparison of the early outcome of acute myocardial infarction in women and men. *N Engl J Med* 1998;338:8–14.
23. **Tunstall-Pedoe H, Morrison C, Woodward M, Fitzpatrick B, Watt G.** Sex differences in myocardial infarction and coronary deaths in the Scottish MONICA population of Glasgow 1985 to 1991. *Circulation* 1996;93:1981– 1992.
24. **Lee KL, Woodlief LH, Topol EJ, Weaver D, Betrin A, Col J, Simoons M, Aylward P, Van der Werf F, Califf RM,** for the GUSTO-I Investigators. Predictors of 30-day mortality in the era of reperfusion for acute myocardial infarction. *Circulation* 1995;91:1659–1668.
25. **Kudenchuk PJ, Maynard C, Martin JS, Wirkus M, Weaver WD.** Comparison of presentation, treatment, and outcome of acute myocardial infarction in men versus women (The Myocardial Infarction Triage and Intervention Registry). *Am J Cardiol* 1996;78:9–14.

Correspondence Address: Dr. Hemant Shrestha, DM Resident, Department of Cardiology, Manmohan cardiothoracic vascular and transplant center, Institute of medicine, Tribhuvan University, E-mail: drhemantshrestha@gmail.com

A COMPARATIVE STUDY OF BONE MARROW ASPIRATION AND BONE MARROW BIOPSY IN HEMATOLOGICAL DISEASES

Nirajan Mainali, Neha Homagai, Pratap Sagar Tiwari, Arun Giri

ABSTRACT:

Introduction: Bone marrow examination is an important diagnostic tool to evaluate various disorder including both neoplastic and non-neoplastic hematological diseases. The two most important techniques used for the diagnosis are bone marrow aspiration and bone marrow trephine biopsy which are complementary to each other.

Aim and objectives: To compare the diagnostic value of bone marrow aspiration and biopsy.

Material and methods: A total of 88cases with both bone marrow aspiration and biopsy were included in the study. All the aspirate smears were routinely stained by Jenner Giemsa while the trephine biopsy sections were stained by routine Hematoxylin and Eosin stain.. All the smears and sections were reviewed and the findings on BMA and BMB were compared and the final correlation done.

Result: Hypoplastic marrow was the most common diagnosis followed by immune thrombocytopenic purpura (ITP). But the diagnostic accuracy of ITP on aspiration was 100 % in compare to hypoplastic marrow (81.25%). The diagnosis accuracy of BMA in our study was 84.09%.

Conclusion: Bone marrow aspiration and biopsy complement each other. Bone marrow aspiration provides better study of the cell, whereas biopsy provides detail about the pattern of cellular distribution, hence when performed together it gives better diagnostic accuracy.

Key Words: *Bone marrow aspiration, Bone marrow biopsy, Hypoplastic marrow, leukemia.*

INTRODUCTION:

Bone marrow examination is an important diagnostic tool to evaluate various disorder including both neoplastic and non-Neoplastic hematological diseases. The bone marrow evaluation may either confirm clinically suspected disease or may provide the previously unsuspected diagnosis.(1,2)

The two most important techniques used for the diagnosis are bone marrow aspiration and bone marrow trephine biopsy which are complementary to each other. Aspiration of

the marrow is primarily utilized for cytological assessment with analysis directed towards morphology and obtaining a differential cell count. Biopsy is essential for diagnosis in a dry tap or blood tap which occurs when the marrow is fibrotic or densely cellular. Only a biopsy allows a complete assessment of marrow architecture and pattern of distribution of any abnormal infiltrates (3). The present study was conducted to compare the role of bone marrow aspirate cytology and trephine biopsy to formulate an effective and

rapid method for diagnosing wide spectrum of hematological diseases.

AIM AND OBJECTIVES:

To compare the diagnostic value of bone marrow aspiration and biopsy.

MATERIALS AND METHODS:

This was a two year retrospective study done in the department of pathology, Nobel medical college hospital and research centre, from march 2013 to February 2015. A total of 140 cases presented with clinical hematological disorders; of which only 88 were biopsied and the correlation done. The bone marrow samples were obtained from the posterior iliac spine. The aspiration needle was passed perpendicular into the cavity of the bone and 0.3 - 0.6 ml of marrow content was sucked with the help of a 10 ml Syringe. The trephine biopsy was performed using Jamshidi needle with the length of the biopsy core ranging from 0.8 to 1.5 cm. The biopsy was then fixed for minimum of 24 hours in 10% buffered formalin and then decalcified overnight picric acid. The fixation of the biopsy core was followed by automated tissue processing, paraffin embedding and sectioning. All the aspirate smears were routinely stained by Jenner Giemsa while the trephine biopsy sections were stained by routine Hematoxylin and Eosin stain.. All the smears and sections were reviewed and the findings on BMA and BMB were compared and the final correlation done.

RESULT:

A total of 88 cases were subjected to bone marrow aspiration and bone marrow biopsy. Hypoplastic marrow was the most common diagnosis followed by idiopathic thrombocytopenic purpura in bone marrow aspiration. Hypoplastic marrow was the most common diagnosis in the bone marrow biopsy also but the number of cases were more in compare to aspiration. 2nd most common

diagnosis was ITP which diagnosis accuracy was 100% when compared with bone marrow aspiration.

Total of six (6) cases came out to be dry while doing bone marrow aspiration. Among with Hypoplastic marrow was the most common case (4/6). One case each of leukemia and myelodysplastic disorder was also encountered.

The overall diagnostic accuracy of bone marrow aspiration cytology in diagnosing hematological disorders was 84.09%.

Disorders	BMA	BMB	Diagnostic accuracy (%)
Megaloblastic anemia	12	10	
Micronormoblastic anemia	10	9	
Hypoplastic anemia	26	32	81.25
Leukemia	4	5	80.00
NHL-infiltration on bone marrow	1	1	100
Myelodysplastic syndrome	3	5	60.00
Multiple myeloma	2	2	100.0
Immune thrombocytopenic purpura	15	15	100.0
Metastasis	2	3	66.67
Leishmaniasis	3	3	100.00
Dry tap	6	-	
Normal	4	3	

Table I: Comparative evaluation of bone marrow aspiration and bone marrow biopsy diagnosis

Cases	Biopsy diagnosis
Hypoplastic anemia	4
Leukemia	1
Myelodysplastic syndrome	1

Table II: BMTB diagnosed cases in dry taps on BMA

DISCUSSION:

Bone marrow examination is an important investigation carried out in the routine practice for the diagnosis of various hematological and non-hematological disorders. BMTB is a relatively safe procedure with adverse event reported in only

.12 to .34% of procedures. The commonest complication of BMTB was mild hemorrhage.(4)Major risk factor for hemorrhage was MPD and increased bleeding in a case of polycythaemia vera(5). The commonest hematological disorder in the present study was hypoplastic marrow with 32 cases belonging to this subset. In the study done by parajuli et al (6) megaloblastic anemia was the most common diagnosis while the study done by Vidisha Mahajan et al (7) nutritional anemia was the most common diagnosis. The diagnosis accuracy of BMA in our study was 84.09% which was similar to the study done by parajuli et al (6). Diagnosis accuracy of BMA was slightly lower in the study done by Smita Chandra et al (77.5%) (8) Our study showed trephine biopsy was also superior to BMA in diagnosing hypoplastic/ aplastic anemia similar to study by parajuli et al(4) and Gupta N et al. (9) We encountered a single case of NHL infiltrating the bone marrow which was diagnosed both on BMA and BMB, where as in the study done by vidisha et al (7) much of the cases could not be diagnose on the BMA alone, which stressed out point that both aspiration and biopsy should be done in case of suspected NHL.(7). 2 out of 3(66%) Metastatic carcinoma were diagnosed on bone marrow aspiration which are as similar to the study done by Smita Chandra (8). 33% of metastatic carcinoma was only found to be positive in BMA in the study done by Donald et al (10) To conclude, Bone marrow aspiration and biopsy complement each other. It is always a clinician decision to choose whether to perform a Bone marrow aspiration or a biopsy or both. Better result is yielded out when both are perform simultaneously. Bone marrow aspiration provides better study

of the cell, whereas biopsy provides detail about the pattern of cellular distribution, cellularity, infiltration by tumor cells and provides a block if immunohistochemistry is to perform later on.

References:

1. **Chandra S, Chandra H, Saini S.** Bone marrow metastasis by solid tumors – probable hematological indicators and comparison of bone marrow aspirate, touch imprint and trephine biopsy. *Hematology* 2010; 15:368-72.
2. **Nanda A, Basu S, Marwaha N.** Bone marrow trephine biopsy as an adjunct to bone marrow aspiration. *J Assoc Physicians India* 2002; 50:893-5.
3. **Bain BJ, Clark DM, Wilkins BS.** The normal bone marrow. In Bain BJ, Clark DM & Wilkins BS editors. *Bone marrow Pathology* 4th Ed. Singapore, Wiley- black well, 2010:1-51.
4. **Khatun H et al,** Bone marrow trephine biopsy in hematological diseases: A study of 53 cases, *J Dhaka Med Coll.* 2013; 22(2): 207-210.
5. **Malempati S, Joshi S, Lai S, Braner DAV, Tegmeyer K.** Bone marrow aspiration and biopsy. *N Engl J Med* 2009; 361(15): 28.
6. **Parajuli S, Tuladhar A.** Correlation of bone marrow aspiration and biopsy findings in diagnosing hematological disorders – a study of 89 cases *Journal of Pathology of Nepal* (2014) Vol. 4, 534-538.
7. **Mahajan V, Kaushal V et al** A comparative study of bone marrow aspiration and bone marrow biopsy in hematological and non-hematological disorders – An institutional experience *JACM* 2013; 14(2): 133-5
8. **Smita Chandra and Harish Chandra.** Comparison of bone marrow aspirate cytology, touch imprint cytology and trephine biopsy for bone marrow evaluation. *Hematol Rep* 2011; 19:3-22.
9. **Nitin Gupta, Ram Kumar, Arvind Khajuria.** Diagnostic assessment of bone marrow aspiration smears, touch imprints and trephine biopsy in hematological disorders. *JK Science* 2010; 12:130-3.
10. **Donald P, Chikappa G.** Comparative evaluation of bone marrow aspirate particle smears biopsy imprints and biopsy sections. *Am J Hematology* 1986; 22:381-9.

Correspondence Address: Dr. Nirajan Mainali, Lecturer, Nobel Medical College, E-mail: mainali_nirajan@hotmail.com

GENDER DIFFERENCES IN SELECTION OF PERMANENT PACEMAKER IMPLANTATION AT MANMOHAN CARDIOTHORACIC VASCULAR AND TRANSPLANT CENTRE, KATHMANDU, NEPAL

Jeevan Khanal, Ratna Raj Poudyal, Surya Devkota, Sanjeev Thapa, Amit Shrestha

Abstract

Background: Permanent pacemaker implantation is a minimally invasive surgical procedure in the management of patients with cardiac rhythm disturbances. Previous studies have reported gender differences in pacemaker selection. There is lack of evidences in selection of pacemaker mode with respect to gender in Nepal. Therefore, this study was performed to compare the frequency of implantation between men and women.

Objectives: This study was performed to compare the frequency of implantation rate between men and women.

Methods: The present study is based on all consecutive pacemaker implantations in a single centre between April 2014 and May 2015. A total of 116 patients were categorized into two cohorts according to the type of pacemaker implanted- single chamber or dual chamber. Data were presented as means \pm standard deviation (SD) for continuous variables and as proportions for categorical variables. Comparison of continuous variables between the groups was made with independent Student's t-test. For discrete variables distribution between groups were compared with Chi-square test.

Results: The mean age (\pm SD) of total population at implant was 64.08 (\pm 15.09) years. Dual chamber units were implanted in 44 (37.93%) of patients, single chamber in 72 (62.06%). Only 14 women (31.81%) received dual chamber compared with 42 women (58.33%) who received single chamber (Chi-square=18, DF=1, P = 0.0084). Complete atrioventricular block was the commonest (56.03%) indication for permanent pacemaker insertion followed by sick sinus syndrome (33.62%), symptomatic high-grade AV block (11.20%). Hypertension (dual chamber 21.55%, single chamber 40.51%) was the most common comorbidity in both cohorts.

Conclusions: Women were more likely to receive single chamber systems and less likely to receive dual chamber systems than men.

Keywords: *Gender; Permanent pacemaker implantation; Nepal.*

Introduction

Permanent pacemaker implantation is one of the most common therapeutic or prophylactic strategies in the management of patients with cardiac problems at present.¹ The basic function of the pacemaker is to pace the heart

in the absence of intrinsic impulses, and to recognize intrinsic cardiac electrical activity if present and restrain pacing consequently. Optimal selection of the single or dual chamber pacemaker devices depend in terms of arrhythmia, their cost effectiveness and

longevity.² However, considerable differences have been reported in the frequency of implantation of pacemakers and in the system selected.^{3,4} Gender differences are increasingly recognized in medicine and especially in cardiology. From previous studies, it is known, for example, that women have a higher likelihood for complications and a higher mortality related to coronary revascularization procedures. In arrhythmias, gender-specific variations in the electrophysiological structure of the heart or hormonal effects may explain some of the gender differences.⁴

Methods

This was hospital based, prospective study conducted at Manmohan Cardiothoracic Vascular and Transplant Centre (MCVTC), Department of cardiology, Maharajgunj, Kathmandu between April 2014 and May 2015. A total of 116 patients were categorized into two cohorts according to the type of pacemaker implanted- single chamber or dual chamber. The study site, one of the tertiary level cardiac centre in Nepal, provides advanced cardiac care to the patients from all over the country.

Study participants were the patients attending Out Patients Department (OPD) and emergency of MCVTC and subsequently admitting for permanent pacemaker implantation. Patients who had pre-existing permanent cardiac pacemaker (PM), defibrillator (ICD) or cardiac resynchronization therapy device (CRT) were excluded from the study. All eligible participants during 14 months period were enrolled in the study.

Participants provided written informed consent after detailed explanation of research purpose and assurance of maintaining privacy and confidentiality. The institutional review board of institute of medicine assessed the ethical part and approved the study.

At initial visit, patients' detailed history of diseases and co-morbidities were recorded. The common co-morbidities included were left ventricular dysfunction (LVD), hypertension,⁵ diabetes mellitus (DM),⁶ chronic kidney diseases (CKD),⁷ coronary artery diseases (CAD), chronic obstructive pulmonary disease (COPD)⁸ and deep vein thrombosis (DVT).⁹ Likewise, information related to prominent symptoms such as syncope and palpitation, and major indications like complete heart block (CHB), sick sinus syndrome (SSS) and symptomatic high degree Atrioventricular (AV) block were also noted.

Permanent pacemaker implantations were performed in a fluoroscopic C arm equipped theatre. The implantation team consisted of a consultant who performed the implantation, Doctor of Medicine (DM) resident posted in cardiac catheterization laboratory, a cardiac physiologist who checked the pacemaker parameters, a pacemaker technician to operate the fluoroscope for imaging and a scrub nurse.

After implantation, patients were closely monitored on the ward for 48 hours.

Data were compiled, edited and checked to maintain consistency prior to coding and entering in Epidata V.2.1 and exporting to SPSS V.16.0 for further analysis. For inferential statistics, chi-square and t tests were conducted to compare the proportions of categorical and mean of continuous variables respectively. A p value of less than 0.05 was considered statistically significant.

Results

The baseline characteristics are presented in table 1. The mean (SD) age of total population at implant was 64.08 ± 15.09 years. Mean age of patients who received dual chamber pacemaker was 64.92 ± 13.20 years, not significantly different from those received single chamber pacemaker (65.80 ± 12.81 years, $P = 0.80$). During the study period, a

total of 54 women (48.27%) received pacemakers. Overall the mean age of women at pacemaker implantation was not significantly different from the age of men (63.2 years \pm 11.3 vs 65.0 years \pm 12.4, $P=0.37$).

Dual chamber units were implanted in 44 (37.93%) of patients, single chamber in 72 (62.06%). Only 14 women (12.06%) received dual chamber compared with 42 women (36.20%) who received single chamber (Chi-square=18, DF=1, $P=0.0084$).

Table 1: Baseline characteristics

Characteristics Total number (%)	Dual Chamber (n=44) (37.93%)	Single Chamber (n=72) (62.06%)	P-value
Age (mean age: 64.94 \pm 15.78 years)	64.92 \pm 13.20	65.80 \pm 12.81	0.80
Women (mean age: 63.2 \pm 11.3years)56 (48.27%)	14 (31.81)	42 (58.33)	0.084
Men (mean age: 65.0 \pm 12.4 years)60(51.72%)	30 (68.18)	30 (41.66)	0.56
Comorbidities			
LV Dysfunction 24 (20.69%)	9 (20.45)	15 (20.88)	0.20
Diabetes mellitus 14 (12.06%)	5 (11.36)	9 (12.50)	0.58
Hypertension 72 (62.06%)	25 (56.81)	47(65.27)	0.11
CAD 9 (7.75%)	4 (9.09)	5 (6.94)	0.87
CKD 28 (24.13%)	11 (25.00)	17 (23.61)	0.36
COPD 5 (4.31%)	2 (4.54)	3 (4.16)	0.09
DVT 2 (1.72%)	0 (0)	2 (2.77)	0.59

Complete atrioventricular block was the commonest (65 patients; 56.03%) indication for permanent pacemaker insertion followed

by sick sinus syndrome (39 patients; 33.62%), symptomatic high-grade AV block (13 patients; 11.20%). Hypertension (dual chamber 21.55%, single chamber 40.51%) was the most common comorbid condition underlying indications for pacemaker implantation. CKD was the second most common disease prevalent among both cohorts. CKD was present in 9.49% in dual chamber cohort among the total 116 patients and 14.65% in single chamber cohort among 116 patients.

Table 2: Univariate analysis of variables determining selection of pacemaker in 116 patients.

Variables	Dual Chamber (Odds ratio, 95% CI)	Single Chamber (Odds ratio, 95% CI)
Age	1.04 (0.87 - 1.21)	2.66 (1.71-3.96)
Sex	0.84 (0.71-0.98)	3.593(1.101-11.732)*
Comorbidities		
LV Dysfunction	1.20 (1.13 - 1.29)	0.89 (1.55 - 4.76)
Diabetes mellitus	1.38 (1.29 - 1.47)	0.17 (0.97 - 1.22)
Hypertension	1.54 (1.35 - 1.75)	2.64 (1.98 - 3.12)
CAD	1.20 (1.13 - 1.29)	1.12 (0.93 - 1.82)
CKD	1.11 (1.03 - 1.20)	3.18 (2.38 - 5.12)
COPD	1.09 (0.95 - 1.23)	2.15 (1.98 - 1.12)
DVT	3.85 (3.57 - 4.16)	1.26 (1.48 - 2.12)
Indications		
CHB	1.54 (1.35 - 2.75)	1.61 (0.98 - 1.64)
SSS	1.09 (0.95 - 1.23)	1.57 (0.98 - 1.42)
Symptomatic high degree AV block	2.36 (1.95 - 4.63)	1.19 (0.98 - 1.19)

*P value < 0.001

Following hypertension and CKD, LV dysfunction was present in 7.75% of total patients in dual chamber and 12.93% of total patients in single chamber. Diabetes mellitus was present in 4.31% in dual chamber and 7.75% in single chamber. Similarly, CAD was present in 3.44% in dual chamber and 4.31% in single chamber. Two (1.72% of total 116 patients) out of total five patients with COPD, were in dual chamber and three (2.58% of total patients) were in single chamber. DVT was present in two patients in single chamber and none in dual chamber.

Univariate analysis of demographic and clinical variables on selection of permanent pacemaker implantation was performed (Table 2). Women were more likely to receive single chamber systems and less likely to receive dual chamber systems than men (Odds ratio:3.593; 95% confidence interval:1.101-11.732; $p < 0.001$).

Discussion

Our study was undertaken to evaluate influence of gender on selection of permanent pacemaker mode. Analysis of data from 116 patients suggests a sex bias in choice of a pacemaker system. Women were more likely to receive single chamber systems and less likely to receive dual chamber than men. Can these findings be explained by differences in the underlying cardiac disorders or demographic data?

Doctors generally implant single chamber pacemakers in elderly patients rather than dual chamber systems. Several studies of factors influencing cardiovascular interventions showed that sex was no longer a determinant once demographic and clinical variables had been adjusted for.¹⁰ Our results agree with two retrospective studies in the United States in which women were found to receive a dual chamber system less frequently than men.¹¹

The clinical importance of the suggested undertreatment of women with dual chamber

pacemakers is not easy to evaluate. Dual chamber pacemakers have been shown to offer haemodynamic advantages over single chamber pacemaker.¹² Although there is evidence that patients treated by advanced pacing have a better quality of life, it is not known whether this improvement is equal in men and women.

What other reasons could there be for doctors deciding in favour of a single chamber pacemaker in women? Firstly, there are some “soft” indications for implanting pacemakers (class II indications in the American College of Cardiology/American Heart Association guidelines). Doctors are known to behave differently towards men and women as far as both diagnostic and therapeutic strategies are concerned.¹³ Doctors seeing women with “soft” indications may tend to implant single chamber pacemakers whereas they choose dual chamber for men. Some of the “hard” indications may also be being neglected in women.

Women often present their symptoms differently from men.¹⁴ They are more likely to receive the same treatment as men if they present their symptoms as men do.¹⁵

Finally, we found some published evidence that women sometimes reject sophisticated care in favour of more simple treatments. They may therefore choose not to have dual chamber systems.¹⁶

Since the implantation of the first artificial pacemaker in 1958 these devices have become the treatment of choice in bradycardias.¹⁷ There are two often related reasons for implanting a cardiac pacemaker: to relieve symptoms and to improve survival. Most patients treated with pacemaker implantation are elderly persons with either chronic atrioventricular-block (AVB) or sick sinus syndrome (SSS).¹⁸ Permanent pacing for complete heart block was the commonest indication in this study (56.03%) and it was comparable (42%) to that reported from a

similar population. Untreated complete heart block has a one year and five year mortality of 50% and 75%–90% respectively; while survival is 70%–85% at five years in those paced.¹⁹

Sick sinus syndrome was responsible for 33.62% of patients paced in this report and it was identical to that reported from a similar district general population in UK. Pacing for sick sinus syndrome is based on the association of symptoms with specific dysrhythmias; it effectively relieves symptoms of bradycardia and can facilitate more aggressive drug treatment of tachyarrhythmias,²⁰ but there is no evidence that pacing asymptomatic patients improves prognosis.²¹

Conclusions

Women were more likely to receive single chamber systems and less likely to receive dual chamber systems than men. Future prospective studies on larger number of patients are needed to confirm and support our findings.

References

- Zoll PM. Resuscitation of the heart in ventricular standstill by external electric stimulation. *New England Journal of Medicine*. 1952;247:768–771.
- Jacobzone S. Coping with aging: international challenges. *Health Affair*. 2000;19:213–225.
- Tse H, Lau C. Clinical trials for cardiac pacing in bradycardia, The End or the Beginning? *Circulation*. 2006; 114:3-5.
- Uslan DZ, Tleyjeh IM, Baddour LM, Friedman PA, Jenkins SM, St Sauver JL, et al. Temporal trends in permanent pacemaker implantation. A Population-based study. *American Heart Journal*. 2008; 155:896-903.
- Chobanian AV, Bakris GL, Black HR, et al. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 report. *Journal of American Medical Association*. 2003;289:2560.
- American Diabetes Association. Standards of medical care in diabetes-2014. *Diabetes Care*. 2014;33(Suppl.1).
- Levey AS, Eckardt K, Tsukamoto Y, et al. Definition and classification of chronic kidney disease: A position statement from kidney disease: Improving global outcome. *Kidney International*.2005;67:2089-2100.
- Qaseem A, Timothy JW, Steven EW, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: A clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. *Annals of Internal Medicine*. 2011;155:179-191.
- Hirsh J, Hoak J. Management of deep vein thrombosis and pulmonary embolism- A statement for healthcare professionals from the council on thrombosis (in Consultation With the Council on Cardiovascular Radiology), American Heart Association. *Circulation*. 1996;93:2212-2245.
- Wenger NK, Speroff L, Packard B. Cardiovascular health and disease in women. *New England Journal of Medicine*. 1993;329:247-56.
- Lamas GA, Pashos CL, Normand SLT, McNeil B. Permanent pacemaker selections and subsequent survival in elderly Medicare pacemaker recipients. *Circulation* 1995;91:1063-9.
- Proctor EE, Lemann RB, Mann DL. Single versus dual chamber sensor-driven pacing: comparison of cardiac outputs. *American Heart Journal*. 1991;122:728-32.
- Armitage KE, Schneiderman LJ, Bass RA. Response of physicians to medical complaints in men and women. *Journal of American Medical Association*. 1979;241:2186-7.
- Shaw LJ, Miller DD, Romeis JC, Kargl D, Younis LT, Chaitman BR. Gender differences in the noninvasive evaluation and management of patients with suspected coronary artery disease. *Annals of Internal Medicine*. 1995;120:559-66.
- Healy B. The Yentl syndrome. *New England Journal of Medicine*. 1991;325:274-6.
- Horton HL, Marinchak RA, Rials SJ, Kowey PR. Gender differences in device therapy for malignant ventricular arrhythmias. *Archives of Internal Medicine*. 1995;155:234-5.
- Muller C, Cernin J, Glogar D et al. Survival rate and causes of death in patients with pacemakers: dependence on symptoms leading to pacemaker implantation. *European Heart Journal*. 1988; 9(9):1003–9.
- Tveskov C, Skytthe A, Arnsbo P, Vaupel JW, Møller M, Christensen K: Twins with implanted pacemakers: Is there an increased mortality risk for the co-twin? A follow-up study based on the Danish Twin Registry and the Danish Pacemaker Register. *Europace*. 2005; 7: 598e603.

19. Alpert MA, Curtis JJ, Sanfelippo JF, et al. Comparative survival after permanent ventricular and dual chamber pacing for patients with chronic high degree atrioventricular block with and without pre-existent congestive heart failure. *Journal of American College of Cardiology*. 1986;7:925–32.
20. Rasmussen K. Chronic sinus node disease: natural course and indications for pacing. *European Heart Journal*. 1981;2:455–9.
21. Shaw DB, Holmann RR, Gower JI. Survival in sinoatrial disease (sick sinus syndrome). *British Medical Journal*. 1980;280:139.

Correspondence Address: Dr. Jeevan Khanal, DM Resident, Department of cardiology, Manmohan cardiothoracic vascular and transplant centre, Kathmandu. Phone no: 9851105798, Mail: khanaljimed@gmail.com

CLINICO-EPIDEMIOLOGICAL PROFILE AND OUTCOME OF POISONOUS SNAKE BITES IN CHILDREN USING THE WHO TREATMENT PROTOCOL IN WESTERN NEPAL

Kiran Mani Paudel, V P Poudyal, Rajan Bikram Rayamajhi, Shyam Sundar Budhathoki

Abstract

Background: Snake bite among children is an important public health problem in many tropical and subtropical countries. Limited studies are found on snake-bite in Nepal using the WHO snake-bite management guidelines. This study assessed the clinico-epidemiological profile and their outcome in snake-bite among children using the WHO Guidelines for treatment of snake bite.

Methods: This is a descriptive study among 75 children less than 14 years of age admitted in Emergency Room (ER) of Lumbini Zonal Hospital from 2011-2012 with the history of poisonous snake bite.

Results: More than half (56%) of the cases were males and 3/5th (58%) were above 10 years of age. About 40% of the patients were brought to ER within 6-12 hrs of snake bite. Common site of snake-bite was lower limbs (32%) followed by upper limbs (29%). Abdominal Pain (44%) was observed as most common sign/symptom of snake-bite poisoning after local pain followed by ptosis (17.3%). The case fatality rate (CFR) was 16.0%.

Conclusion: Use of WHO treatment guideline for snakebite case management among children showed low CFR. However further studies need to be done to compare the treatment outcomes between WHO guideline and the National Guidelines among snakebite cases among children.

Key words: *Case fatality rate, Envenomation, snake bite Nepal*

Introduction:

The incidence of snakebite is high in warmer regions where snakes are found abundantly and agriculture is the main economic source.² In the South East Asia Region, snakebite is a common medical emergency and an important cause of hospital admissions. There are 200 poisonous species of snakes from the known 3000 species of snakes around the world.

All the snakebite cases do not reach the health facility, comprising of non poisonous snake bites, less severe cases, and the cases that have died in the field. There are reported cases of seeking treatment from traditional healers. Thus data available so far cannot give

precise data on the snakebite incidence. There is an estimate of more than 5 million snakebites associated with more than 100 thousand deaths due to snakebites each year. South East Asia and Sub Saharan Africa report highest burden of snakebite in the world. Estimated 4 million snakebites are reported from Asia alone.

While Cobra and Krait are the commonest poisonous snakes in the terai region of Nepal, there are 22 species of snakes that are known to be poisonous. Annual morbidity due to snake bite is 162/100,000 people in Nepal. There are 1000 deaths in hospital every year from an estimated 20,000 snake bites that

occur each year in Nepal.⁶ Before the introduction of the National protocol for the management of snakebite in 2003, the case fatality of poisonous snakebite was as high as 58% in Nepal. The management of snakebite before the protocol was released varied from center to center.⁸ The case fatality rate (CFR) among the snakebite in children was reported as 25% even after the introduction of the national protocol for treatment of snakebite in Nepal.

After the implementation of the National Protocol in 2007 in India has resulted in lowering the morbidity due to snakebite and expenditure related to snakebite treatment.^{17,18}

The WHO guideline on treatment of snakebite for the South East Asia has been released for use for use by countries for the management of snakebite in the region.¹⁹ Studies reporting on the use of WHO guidelines for snakebite among children was not found in context of Nepal. Hence this study was conducted to assess the socio-epidemiological profile and evaluate the outcome of snake bite poisoning with the use of WHO 2010 guidelines in Western Nepal.

Materials and Methods

A Cross sectional study was conducted among the under 14 years children presenting in the emergency department of Lumbini Zonal Hospital, a tertiary referral hospital in western Nepal. Total snake bite cases recorded at Lumbini Zonal Hospital during the study period were 2318, out of which 297 developed signs and symptoms of envenomation. Of which 75 patients belonged to less than 14 years of age which were included in this study. The study was conducted over a period of 1 year from 2011 to 2012. We included children 14 years and below who showed signs of envenomation. Snakebite cases that were brought dead cases and referred cases of snakebite were excluded from the study. Informed consent was taken prior to the study after explaining the

objective of the study to the patient's guardian. Patients were treated by the clinicians and the paramedics using WHO snake envenomation management guidelines. Anti-snake venom manufactured by Haff kine Pharmaceutical Company, Bombay which was distributed by Ministry of Health and Population, Epidemiology and Disease Control Division for government health centers were used for the treatment of the snakebite cases. The permission was taken from the Medical Superintendent of the Hospital to conduct the study. The data were entered in Microsoft Excel 2007 and analyzed using SPSS 17.0 version.

The diagnosis of snake-bite was established on the basis of a history, clinical examination of the patient, observation of the killed snake if available or recognition of the snakes by patient / observers. Snake bite cases admitted in the observation ward were monitored for eight hours to rule out the signs of envenomation. Those who developed signs of envenomation with evidence of neurotoxicity like ptosis, external ophthalmoplegia, respiratory paralysis and other signs of hemotoxic poisoning—were managed with ASV according to the WHO guidelines 2010. As per the guidelines, 10 vials of polyvalent anti-snake venom (ASV) serum were administered by intravenous infusion over an hour to patients with signs of envenomation. Among those with no improvement in ptosis, another 10 vials of ASV repeated over another two hours and then decreased to 2 vials infused slowly with reference to body mass. Similarly, intravenous fluids and antibiotics were also given to children on the basis of body weight.

Results

More than half (56.0%) of the children were male. About 58.8% were from the age group 10-14 years. Among the patients, it was observed that most of the patients (89.3%) belonged to low socioeconomic background

with poor housing and surrounding making them vulnerable to snake bite.

Table 1: Characteristics of patients with poisonous snake bite (n=75)

Characteristics	Categories	Number (n)	Percentage (%)
Gender	Male	42	56
	Female	33	44
Age group (years)	< 10	31	41.33
	≥ 10	44	58.67
Socio-economic status	Low	67	89.3
	High	8	10.7

More than half (58.6%) of the snakes responsible for bites in our study were unknown followed by Krait (27%) and Cobra (15%) as seen in fig 2. Above mentioned known bites, were presented to ER with the dead snake or as according to the observers. It was found that more than 1/3rd of the patients were brought to hospital within 6-12 hours of snake bite while 20% of cases were brought to ER within 6 hrs of snakebite.

It was seen that lower limbs (32%) and upper limbs (29.33%) were commonest site for snake bite among the patients.

Table 2: Distribution of patients according to type of snake bite, bite site, time to reach hospital after bite

Characteristics	Categories	Number (n)	Percentage (%)
Type of snake bite	Krait	20	26.67
	Cobra	11	14.67
	Unknown	44	58.67
Bite sites	Lower limbs	24	32
	Upper limbs	22	29.33
	Head	5	6.67
	Body	4	5.33
	Others	20	26.67
Time gap between bite	1-6	15	20
	6-12	30	40

and arrival (hours)	12-18	13	17.33
	>18	17	22.67

As shown in Table 3, following snake bite, pain abdomen (44%) was the most common clinical presentation after the local pain followed by vomiting (27%) and ptosis (22.67%). Only one patient was found unconscious. The number of ASV used ranged from 10-38 vials with average of 24.37 vials.

Table 3: Distribution of Sign / Symptom of envenomated patients in ER (n=75)

Characteristics	Frequency*	%
Local pain	75	100
Pain abdomen	40	53.3
Ptosis	17	22.7
Vomiting	20	26.7
Difficulty in breathing	15	20.0
Salivation	10	13.3
Throat pain	7	9.3
Swallowing difficulty	6	8.0
Slurring speech	3	4.0
Unconsciousness	1	1.4

*Multiple responses

Of which 75 snakebite cases in the study, there were 12 deaths among the children during treatment resulting in a case fatality rate (CFR) of 16%.

Discussion:

Snakebite among the children in our study occurred more among the above 10 years of age. This finding is similar to other studies.^{12, 19} Children above 10 years engage in outdoor activities more compared to the younger children.²² Findings from retrospective study in Western Nepal are in line with our study findings, where male children were more affected by snakebite.²² This finding is seen in other previous studies as well.^{12, 13, 19-21} This observation could be due to male children playing and working outside with sleeveless shirts more frequently than their female counterparts.

In this study, the highest incidence of snakebite poisoning was seen during the months of June, July and August which corresponds to the monsoon season in Nepal. This is also a hot season and the snakes come out of their shelter due to increased humidity and temperature. This seasonal pattern of poisoning was seen in other studies as well.^{9,14,15,21}

The study found that the most common site for snake bite were upper limbs and lower limbs. This finding is comparable to previous studies.^{9,10,12,18,20,21} This may be because the children have accidentally stepped over the snake while walking and playing and also the curious young children, while playing, put their fingers and hands into the blind holes or pits where the older children may come across the snakes when they are cutting the grass. Abdominal pain followed by ptosis as a common sign was also reported by a previous study.¹²

Ptosis is easily noticeable by the health workers as well as the family members. A fifth of the children developed respiratory distress in our study which is similar to a previous study.²² Early administration of anti snake venom is very important in management of cases with poisonous snake bite to reduce the development of respiratory distress.

The average number of vials of ASV used during treatment was 24.37 vials per case. Studies in Nepal have reported 19.6 vials per case²⁰, 14.4 vials per case¹² and 18.2 vials per case.²² These differences in numbers of vials of anti snake venom vials could not be further investigated at the moment. Case fatality rate (CFR) was high (16%) in this study. This finding is in agreement with earlier studies^{12,14,15}. The total case fatality rate in different studies before the introduction of WHO protocol ranged from 3 to 58%. The CFR in our study can be explained as children are at a greater risk of severe envenomation due to their smaller body size and volume for

venom distribution, and outdoor playing behaviors.³ Secondly, in this study, only the poisonous snakebite cases have been included. Anti snake venom is more effective when delivered within 4 hours of the bite.³ More than 3/4th of the children in our study were brought for treatment after 6 hours of the snakebite.

With use of WHO guidelines, the CFR in our study was 16.0%, which is lower than the CFR of 28.2% in a study among 301 snakebite cases using the national snakebite treatment protocol.

The use of WHO guidelines for the management of snake bite resulted in a lower CFR among the snake bite cases in children. There however is need for further studies using the WHO guidelines among the children to generate evidence on the applicability of WHO guideline for snakebite management among children in the Nepalese context.

Conflict of Interest: None

Funding: None

Acknowledgment

We would like to thank Medical Superintendent of our hospital Dr Tara Nath Paudel for cooperation during the study. I am also thankful to medical record officer Laxmi Raj Regmi for supporting in data review and Mr. Ram Bahadur Malla for his secretarial help.

References

1. **Warrell DA.** WHO/SEARO Guidelines for the clinical management of snake bites in the Southeast Asian region. *South East Asian J Trop Med Publ Hlth* 1999; 30:1- 83.
2. **Chippaux JP.** Snake-bites: appraisal of the global situation. *Bull WHO* 1998; 76 (5):515-24
3. **Holve S. Envenomations:** In Behrman RE, Kliegman RM, Jenson HB and Stanton BF. Nelson Textbook of Pediatrics. 18th ed. Philadelphia: W.B. Saunders Company; 2007: 2932-35.
4. **Kasturiratne A, Wickremasinghe AR, de Silva N, Gunawardena NK, Pathmeswaran A et al.** The global burden of snakebite: a literature

- analysis and modelling based on regional estimates of envenoming and deaths. *PloS Med* 2008;5(11):218.
5. **Epidemiology and Disease Control Division**, Ministry of Health, Gov of Nepal. Annual Report on Incidence of poisonous snakebite in Nepal. 2001:63-71.
 6. **WHO**. Zoonotic Disease Control: Baseline Epidemiology Study on Snakebite, Treatment and Management in Nepal. *WHO Weekly Epidemiol Rev* 1987;42:319-20
 7. **Sharma SK, Chappuis F, Jha N, Bovier PA, Loutan L, Koirala S**. Impact of snake bites and determinants of fatal outcomes in southeastern Nepal. *Am J Trop Med Hyg* 2004;71(2):234-8.
 8. **Shah KB, Shrestha JM, and Thapa CL**. Department of Health Services Epidemiology and Disease Control Division, Zoonoses Control Sub-Section. Snakebite Management Guideline. 2003: 1-53.
 9. **Hansdak SG, Lallar KS, Pokharel P, Shyangwa P, Karki P, Koirala SA**. Clinico- epidemiological study of snakebite in Nepal. *Trop Doctr* 2004;34(1):20-2.
 10. **Pandey DP, Thapa CL, Hamal PK**. Impact of First Aid Training in Management of Snake Bite Victims in Madi Valley. *J Nepal Health Res Council* 2010;8(16):5-9.
 11. **Heap BJ, Cowan GO**. The epidemiology of snakebite presenting to British Military Hospital, Dharan, during 1989. *J Army Med Corps* 1991;137:123-25.
 12. **Shrestha BM**. Snakebite poisoning in children. *JNepal Med Assoc* 2002;41:463-67.
 13. **Sharma SK, Khanal B, Pokhrel P, Khan A, Koirala S**. Snakebite-reappraisal of the situation in eastern Nepal. *Toxicon*. 2003;41:285-89.
 14. **Joshi DD**. An Epidemiological Study of Snake Bite Cases in Children of Nepal. *J Nep Paedr Soc* 2010;30(3):135-40.
 15. **Pandey DP**. Epidemiology of Snake Bites Based on Hospital Survey in Chitwan and Nawalparasi Districts, Nepal. *J Nep Health Res Counc* 2006;4:51-57.
 16. **Simpson ID**. The pediatric management of snakebite: the national protocol. *Indian Pediatr* 2007;44(3):173-6.
 17. **Ghosh S, Maisnam I, Murmu BK, Mitra PK, Roy A, Simpson ID**. A Locally Developed Snakebite Management Protocol Significantly Reduces Overall Anti Snake Venom Utilization in West Bengal, India. *Wilderness Environmen Med* 2008;19:267-74.
 18. **Warrell DA**. WHO/SEARO Guidelines for the clinical management of snake bites in the Southeast Asian region. 2010.
 19. **Kulkarni ML, Anees S**. Snake venom poisoning: experience with 633 cases. *Indian Pediatr* 1994;31:1239-43.
 20. **Devkota UN, Steinman JP, Kathayat JB**. Epidemiology of snakebite; A study from Choharwa Army Camp, Siraha, Nepal. *J Nepal Med Assoc* 2001;40:57-62.
 21. **Devkota UN; Steinmann JP; Shah LN**. Snakebite in Nepal: a study from Siraha district. *J Nepal Med Assoc* 2000;39:203-09.
 22. **Paudel KM, Sharma S**. Study of Clinico-epidemiological Profile and outcome of poisonous snake bites in Children. *Journal of Nepal Paediatric Society* 2012;32(1):47-52.

Correspondence Address: Dr. Kiran Mani Paudel, Chief Consultant Pediatrician, Department of Pediatrics, Lumbini Zonal Hospital, Rupandehi, Nepal. Email: kmp2588@yahoo.com

DEEP NECK INFECTIONS AMONG THE POPULATION ATTENDING AT NOBEL MEDICAL COLLEGE BIRATNAGAR

Ravi Bhushan Suwal, Meenakshi Basnet, Rabin Acharya, Kamal Parajuli

Abstract

Introduction: The advent of diagnostic tools and antibiotic, incidence of deep neck infections have been reduced but still infections are seen today with definite potential for significant morbidity and mortality. The purpose of this study was to review predisposing factors, bacteriology, treatment and possible complications.

Study design: A retrospective review was conducted of patients who were diagnosed as deep neck infections in Department of Otolaryngology at Nobel Medical College from between August 2010 to December 2014. Total 90 patients were included in this study. Their demography, etiology, underlying systemic diseases, infection locality, causative organism and modality of treatment were reviewed.

Results: Of 90 patients, 65 were male and 25 were female. Forty eight patients were in age range of 20-40 years and which was the most affected age group in our series. Odontogenic and parotid infections were the most frequent causes for deep neck infections. Submandibular space and cervical lymph node were most affected site in neck. Staphylococcus aureus and mixed flora were organisms commonly isolated from culture. The most commonly found systemic diseases were diabetes mellitus and systemic arterial hypertension. In our series 18 patients (20%) had associated diabetes mellitus (DM). The most frequently encountered complication was upper airway obstruction. In our series 3 patients undergone tracheostomy; one patient each with Ludwig's angina, necrotizing fasciitis and retropharyngeal abscess.

Conclusions: It is essential to pay attention to older patients associated with systemic diseases (DM, HTN, Chronic kidney disease), because they can often progress to life threatening complications. The mainstays of treatment are maintenance of the airway, fluid resuscitation, intravenous antibiotics, and timely adequate surgical drainage. Therapeutic needle aspiration and conservative medical treatment are effective in selective cases such as those with minimal abscess formation.

Keywords: *Deep neck infection, Odontogenic, Diabetes mellitus, airway obstruction*

Introduction

Deep neck infections (DNI) are bacterial infections originating from the upper aerodigestive tract and involving the deep neck spaces.¹ DNI was a serious and potentially life-threatening infection in the past. With improved diagnostic investigations, widespread availability of

antibiotics and early surgical intervention today, the mortality rate has decreased significantly compared with that of early reports.²⁻⁴ However, when not diagnosed and treated appropriately, these infections progress rapidly and are associated with high morbidity and mortality. Complications resulting from DNI are usually

due to delay in treatment. These may include upper airway obstruction, jugular venous thrombosis, descending mediastinitis, septic shock and death.

Material and Method

The study was a retrospective analysis of patients diagnosed with deep neck infections in the Department of Otolaryngology at Nobel Medical College and Teaching Hospital between August 2010 to December 2014. Data were collected from 10th April 2015 to June 10th 2015 after the ethical clearance from IRC, Noble Medical College.

Total 90 patients were included in this study. Their demography, etiology, underlying comorbid conditions, infection locality, causative organism and modality of treatment were reviewed.

Computed tomography of the neck and thorax and surgical reports were used for establishing which of neck spaces were involved by infection.

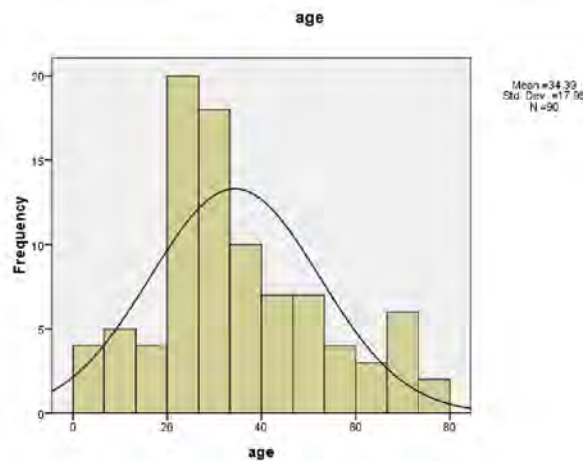
The involved spaces were divided according to the description published previously^{7,8} and included Ludwig's angina and following spaces in our series: submandibular, parapharyngeal, retropharyngeal, anterior cervical, parotid and masticator space.

Data were tabulated for descriptive and statistical analysis. The SPSS version 16.0 software was used.

Results

Of 90 patients, 65 were male and 25 were female. Their ages ranged from 1-79 years, with a mean age of 34.3±17.99 years. Forty eight patients were in age range of 20-40 years and which was the most affected age group in our series as indicated in Figure 1.

Fig.1 Age distribution



Identification and diagnosis of involved spaces/sites was done with the help of various radiological investigations particularly ultrasonogram and if required CT scans with contrast enhancement. The distribution of the spaces/sites is shown in table 1.

Table1. Spaces and site involved by abscess

Spaces/Sites of abscess	No.	%
Submandibular space	19	21.1
Suppurativelymphadenitis	14	15.6
Parotid space	12	13.3
Peritonsillar space	10	11.1
Masticator space	8	8.9
Parapharyngeal space	8	8.9
Tubercular abscess	7	7.7
Infected cyst	5	5.6
Necrotizing fasciitis	3	3.3
Ludwig's angina	2	2.2
Anterior cervical abscess	1	1.1
Retropharyngeal abscess	1	1.1
Total	90	100

The main reason for deep neck abscess in our series was odontogenic (19 patients), which accounted for 21.1% of total cases followed by parotitis (12 cases, 13.3%). Ten cases (11.1%) are afflicted after tonsillar infection, 7 cases (7.8%) after tubercular infection, 6 cases (6.7%) affected following URTI, 5 patients (5.6%) occurred as the consequences of congenital cervical cyst infection. Skin infection and traumatic causes are responsible for 3 case (3.3%) and 2 cases (2.2%) respectively but in 26 cases (28.8%) of

abscesses cause was unknown as depicted in Table 2.

Table 2. Etiological factors identified

Etiology	No.	%
Odontogenic	19	21.1
Parotitis	12	13.3
Tonsillar infection	10	11.1
Tuberculosis	7	7.8
URTI	6	6.7
Congenital cervical cyst	5	5.6
Skin infection	3	3.3
Traumatic	2	2.2
Unknown	26	28.8
Total	90	100

Twenty seven patients (30%) had underlying systemic disease. Their ages ranged from 27 to 78 years with a mean age of 54years. There were 18 patients (66.6% of 27 cases) with diabetes mellitus (DM), 5 patients (18.5% of 27 cases) with systemic arterial hypertension, 3cases (11.1% of 27 cases) with chronic kidney disease and 1 case (3.7% of 27 cases) with hepatitis as shown in Fig.2

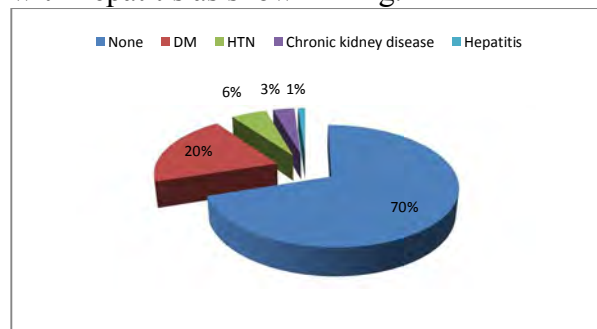


Fig.2 Co- morbid disease conditions

There were only 2 patients (7.4%)who had associated co-morbid condition with age<35 years while 25 patients (92.6%) were age >35 years suggesting the patients with underlying co-morbid condition have a higher mean age. This was statistical significant with p value of < 0.05. Table 3.

Age	Co-morbid present	Co-morbid absent	Total	Pvalue
<35	2	56	58	<0.00
>35	25	7	32	
	27	63	90	

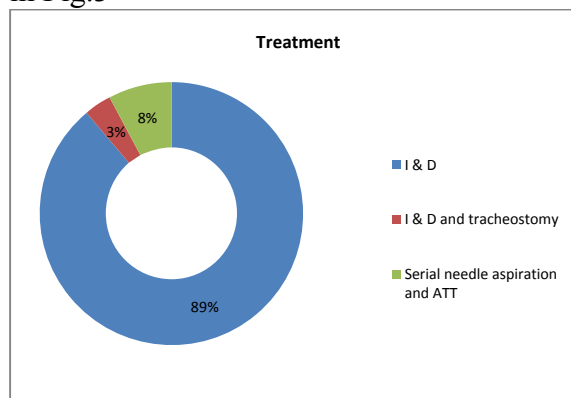
Except for tubercular abscess all the patients were undergone culture and sensitivity test.

Out of total 83 cases (excluding tuberculosis), results of bacterial cultures for 65 cases (78.3% of 83 cases) were positive. Among the positive cultures, staphylococcus aureus was most significant pathogen isolated in 35 cases (42.1%) followed by mixed flora in 11 cases (13.2%). Eighteen cultures had no bacterial growth after 48 hours of incubation as described in Table 4.

Table 4. Causative organism of abscess

Organism	No	%
Staphylococcus aureus	35	38.9
Mixed flora	11	12.2
Streptococcus viridans	8	8.9
Mycobacterium tuberculosis	7	7.8
Streptococcus pyogens	6	6.7
Enterococcus fecalis	3	3.3
E. coli	2	2.2
No growth	18	20

The entire patient received antimicrobial therapy. Out of 90 patients, 80patients (88.8%) underwent surgical drainage, 3 patients (3.3%) underwent surgical drainage and tracheostomy and other 7 patients (7.7%)underwent serial needle aspiration and anti-tubercular therapy (ATT). Except the patient with tuberculosis, rests of the all were admitted and received parenteral antibiotics. After doing surgical intervention and parenteral antibiotics for few days all patients were discharged in stable condition as shown in Fig.3



Discussion

The fascial spaces of the neck are potential spaces between the layers of the cervical fasciae. In the normal state, the spaces do not exist but present as loose connective tissue that may be digested and displaced by and infective process. A thorough knowledge of the anatomy of these fasciae and spaces is essential to understand the etiology, presentation, and potential complications of a specific space infection. It is also important to perform proper radiological investigation and to institute the most effective treatment.

The mean age that was affected most by deep neck infections in the literature varied from 36 to 57 years.^{1, 9, 10} which was comparable to our finding and this can be attributed to intravenous drug abuse or external blunt trauma which usually occurs in the young or middle aged. The disease was more common in case of males, as many studies have reported.^{3, 4, 11, 12}

The predominantly involved space in this study was submandibular space. Which is consistent with Raga, Meher^{13, 14} and Ghandomi and RegueroVillarín^{15, 16} who introduced the submandibular space as the most prevailing one while disagrees with Parhiscar's and Huan's studies which announced parapharyngeal space as the prevalent space.^{4, 17}

DNI originate from a variety of sites in the head and neck; these include the teeth, the salivary glands and the tonsils. The teeth are the most common primary site (31%-80%), followed by tonsils (1.5% -3.4%).^{3, 4, 11, 12} Odontogenic conditions were the most common cause in our series (21.1%), and followed by parotid disease (13.3%). The cause remained unknown in 26 patients (28.8%) even after a detailed clinical history, physical examination and radiological studies. Other studies have also shown a significant proportion (16%-39%) of neck abscess of unknown origin.^{3, 4, 12} Infections from teeth may readily spread into sublingual,

submandibular and masticator space because of its close anatomic proximity. That's why the submandibular space was most frequently involved space as so far.

The microbiological characteristics of DNIs have been studied extensively in the past as resistance rates to conventional antibiotics have become a concern. Common culprits for DNIs include the *Streptococcus viridans*, Beta hemolytic streptococci, *Staphylococcus aureus*, *K. pneumonia*, anaerobic *Bacteroides*, and *Peptostreptococcus*.^{2, 3, 4} In our study, among the positive cultures, staphylococcus aureus was most significant pathogen isolated in 35 cases (42.1%) followed by mixed flora in 11 cases (13.2%). Eighteen cultures (21.6%) had no bacterial growth after 48 hours of incubation, this is a low rate compared to that of other authors (which has ranged from 27%-40%).^{3, 18} This is probably due to the indiscriminate use of antibiotics before coming to hospital.³

The treatment of deep neck infection consists of airway management, fluid resuscitation, antibiotic therapy, and surgical drainage of the abscesses. Surgical drainage should be performed without delay for cases with significant abscess formation seen on CT, impending complications, or not responding to medical treatment. If there is minimal pus collection and not at risk of complications, conservative management may be tried. Another important thing in a management of deep neck infection is associated co-morbid condition and that should be managed parallel to the management of deep neck abscess.¹⁰

Deep neck infections are very prone to complications, such as upper airway obstruction, Lemierre's syndrome (thrombophlebitis of internal jugular vein), carotid artery pseudoaneurysm or rupture, plural effusion and septic shock.^{9, 19, 20} In our series, the most frequently encountered complication was upper airway obstruction. Authors reported a higher incidence of tracheostomies in Ludwig's angina abscesses

(75%) and retropharyngeal space abscess (25%).^{2,4} In our series 3 patients undergone tracheostomy; one patient each with Ludwig's angina, necrotizing fasciitis and retropharyngeal abscess. Incidence of airway obstruction in our series was quite low as compared to other studies, probably because many of the patients were treated in the early stage of the disease.

The most commonly found systemic diseases were diabetes mellitus (DM) and systemic arterial hypertension. The literature has reported a 16%-20% incidence of diabetes.³ In our series again 20% of patients had associated diabetes mellitus. It results in a defect in the host's immune function such as cellular immunity complement activation and polymorphonuclear neutrophil function and that increase the risk of vascular complications and the episodes of infection.^{21, 22} Out of 3 patients who were undergone tracheostomy for airway obstruction, two of them were known diabetes mellitus. Therefore when dealing with deep neck infections, more attention should be paid to patients with DM or other associated systemic diseases.^{9, 10}

Prompt recognition and treatment of deep neck infections are essential for an improved prognosis. Thus, key elements for improved results are the identification of morbid factors, signs and symptoms, and computed tomography.

Conclusions

The current study enables us to conclude that Odontogenic cause is the most common for DNI and submandibular and parotid areas are the most frequently involved spaces. Staphylococcus aureus and mixed flora are the main microorganisms involved in this condition. It is essential to pay attention to patients associated with systemic diseases (DM, HTN, chronic kidney disease), because they can often progress to life threatening complications. The mainstays of treatment are maintenance of the airway, intravenous

antibiotics, and timely adequate surgical drainage.

REFERENCES

1. Suebara AB, Goncalves AJ, Alcadipani FA, Kavabata NK, Menezes MB. Deep neck infection-analysis of 80 cases. *Brazilian Journal of Otorhinolaryngology* 2008; 74(2); 253-9.
2. Har-El G, Aroesty JH, Shaha A, Lucente FE. Changing trends in deep neck abscess. A retrospective study of 110 patients. *Oral Surg Oral Med Oral Pathol* 1994; 77:446-450.
3. Sethi DS, Stanley RE. Deep neck abscesses—changing trends. *J Laryngol Otol* 1994; 108:138-143.
4. Parhiscar A, Har-El G. Deep neck abscess: a retrospective review of 210 cases. *Ann OtolRhinolLaryngol* 2001; 110:1051-1054.
5. ColmeneroRuize C, Labajo AD, Yanez Vilas I, Paniagua J: Thoracic complications of deeply situated serious neck infections. *J CraniomaxillofacSurg* 1993, 21:76-81.
6. Beck HJ, Salassa JR, McCaffey TV, Hermans PE: Life-threatening soft tissue infections of the neck. *Laryngoscope* 1984, 94:354361.
7. Marra S, Hotaling AJ. Deep neck infections. *Am J Otolaryngol* 1996; 17:287-298.
8. Scott BA, Stiernberg CM, Driscoll BP. Infections of the deep spaces of the neck. In: Bailey BJ, editor. *Head and neck surgery otolaryngology*, 3rd ed. Philadelphia: JB Lippincott; 2001. p 701-715.
9. Chen MK, Wen YS, Chang CC, Huang MT, Hsiao HC. Predisposing factors of life-threatening deep neck infection: logistic regression analysis of 214 cases. *J Otolaryngol* 1998; 27(3):141-4.
10. Chen MK, Wen YS, Chang CC, Lee HS, Huang MT, Hsiao HC. Deep neck infections in diabetic patients. *Am J Otolaryngol* 2000; 21(3):169-73.
11. Bahu SJ, Shibuya TY, Meleca RJ, Mathog RH, Yoo GH, Stachler RJ, et al. Craniocervical necrotizing fasciitis: an 11-year experience. *Otolaryngol Head Neck Surg* 2001; 125(3):245-52.
12. Sakaguchi M, Sato S, Ishiyama T, Katsuno S, Taguchi K. Characterization and management of deep neck infections. *Int J Oral Max Surg* 1997; 26(2):131-4.
13. Raga AJ, Aziz SR, Ziccardi VB. Microbiology and antibiotic sensitivities of head and neck space infections of odontogenic origin. *J Oral MaxillofacSurg* 2006; 64(9): 1377-80.
14. Meher R, Jain A, Sabharwal A, Gupta B, Singh I, Ajarwal AK. Deep neck abscess: A prospective

- study of 54 cases. *J LaryngolOtol* 2005; 119 (4): 299-303.
15. **Ghandomi B, Musavi SA.** Epidemiology and etiology of deep neck abscess. *Iranian journal of otorhinolaryngology* 2008; 20(1): 39-44.
 16. **RegueiroVillarín SV, AzquezBarro JC, Herranz Gonzalez-Botas J.** Deep neck infections: Etiology, bacteriology and treatment. *ActaOtorrinolaringolEsp* 2006; 57(7): 324-8.
 17. **Huang TT, Liu TC, Chen PR, Tseng FY.** Deep neck infection: An analysis of 185 cases. *Head Neck Surg* 2004; 26: 854-60.
 18. **Lin C, Yeh FL, Lin JT, Ma H, Hwang CH, Shen BH, et al.** Necrotizing fasciitis of the head and neck: an analysis of 47 cases. *PlastReconstrSurg* 2001;107 (7):1684-93.
 19. **Estrera AS, Landay MJ, Grisham JM, Sinn DP, Platt MR.** Descending necrotizing mediastinitis. *SurgGynecolObstet* 1983; 157:545-552.
 20. **Beck HJ, Salassa JR, McCaffrey TV, Hermans PE.** Life threatening soft tissue infections of the neck. *Laryngoscope* 1984; 94:354-362.
 21. **Hostetter MK.** Handicaps to host defenses: effects of hypoglycemia on C3 and *Candida albicans*. *Diabetes* 1990; 39:271-275.
 22. **Delamaire M, Maugendre D, Moreno M, et al.** Impaired leukocyte functions in diabetic patients. *Diabetic Med* 1997; 14:29-34. 8

Correspondence Address: DR. Ravi BhushanSuwal, Lecturer, Nobel Medical College, Biratnagar aarbiyesh@gmail.com

CLINICAL, BIOCHEMICAL AND VIROLOGICAL PROFILE OF PATIENTS WITH CHRONIC HEPATITIS C VIRUS INFECTION-A STUDY FROM UNIVERSITY HOSPITAL IN NEPAL

Dipesh Gurubacharya, Mohan Khadka, Khadga B. Shrestha, Prem Khadga, Sashi Sharma

Abstract

Introduction: Hepatitis C virus (HCV) infection is a major public health challenge. It is a major cause for cirrhosis and hepatocellular carcinoma worldwide. Both the genotype and viral load of HCV determine the choice of therapy as well as outcome of therapy. The aim of this study was to evaluate clinical, biochemical and virological profile and association of HCV genotypes with viral load and liver biochemical profile.

Material and Methods: This was descriptive observational study of chronic HCV infected patients who attended at the outpatient clinic of Department of Gastroenterology of TUTH, IOM from April 2013 to November 2014. During this study period 38 patients with chronic HCV infection were analyzed. Clinical profile, possible risk factors for transmission of HCV infection and liver biochemical profile were recorded. Virological profile included HCV viral load and HCV genotypes.

Results: Out of 38 patients 34(89.5%) were male and 4(10.5%) were female. Injection drug use (IDU) was the most common mode for acquisition of HCV infection (55.3%). Genotype 3 was found in 21(55.26%) patients and genotype 1 was found in 17(44.74%) patients. There was no significant association between HCV genotypes and serum alanine aminotransferase (ALT) and aspartate aminotransferase (AST) level. And also there was no significant association between HCV viral load and different HCV genotypes.

Conclusions: In our study HCV genotype 3 was the most prevalent genotype in patients with chronic HCV infection. Injection drug use was identified as most common identifiable risk factor for transmission of HCV infection. There was no significant association between different HCV genotypes and serum ALT, AST level and HCV viral load.

Key words: ALT, AST, genotype, hepatitis C virus, viral load

Introduction

Hepatitis C virus (HCV) infection is a major public health challenge worldwide. About 170 million people or 3% of world's population are infected with HCV.¹ More than 350,000 deaths annually are attributed to HCV infection, most of which are caused by cirrhosis of liver and hepatocellular carcinoma (HCC).² An estimated 27% of cirrhosis and 25% of HCC can be attributed to HCV worldwide.² In developed countries,

the most important route of HCV transmission is intra-venous drug use, whereas in resource poor countries, invasive procedures or injection-based therapies with contaminated instruments are predominant source of new infections.³ Different studies from Nepal showed that the sero-prevalence of HCV ranges from 0.35% to 1.73% in blood donors and healthy population with highest prevalence among injection drug users.⁴⁻⁸ Six different HCV genotypes and

multiple subtypes have been identified on the basis of molecular relatedness.⁹ Knowledge of the genotype is helpful for prediction of sustained virological response (SVR) and choice of treatment duration.¹⁰ Chronic HCV infection is associated with a wide variation in serum ALT level, from normal ALT to persistent elevation of ALT. Approximately 25-30% of individuals with chronic HCV infections have persistently normal ALT level.¹¹

The aim of this study was to determine clinical, biochemical, HCV genotype distribution and HCV viral load in patients infected with chronic HCV and to assess the relationship between HCV genotype with serum ALT level, serum AST level and HCV viral load.

Material and Methods

This study was a descriptive observational study of chronic HCV infected patients who attended at the outpatient clinic of Department of Gastroenterology of Tribhuvan University, Institute of Medicine (TU, IOM) from April 2013 to November 2014. All the included patients were positive for Anti-HCV by ELISA. All the patients were positive for HCV RNA by Real Time- Polymerase Chain Reaction (PCR). All the patients who were not taking anti-viral treatment for HCV infection were included in this study, but the co-infected patients with hepatitis B virus (HBV) and human immunodeficiency virus (HIV) were excluded. All the information regarding clinical profile, liver biochemical parameters and virological parameters were recorded digitally. Patient's clinical details included age, gender and possible risk factors for HCV transmission. Liver biochemical parameters included serum ALT and AST level. Virological profiles included HCV viral load and HCV genotypes. As HCV genotype and HCV viral load testing facility is not available in Nepal, HCV viral load and genotypes were done in different laboratories in India where RT-PCR for determining HCV viral load and genotypes were available.

The data obtained was entered in Microsoft Excel and exported to further statistical analysis was done using statistical package for social sciences (SPSS) version 20. Standard descriptive statistical analysis was carried out as per demographic, biochemical and HCV viral load. The relationship was analyzed by comparing variables using Student t-test. Results were considered significant if *p*-value was less than 0.05.

Results

During April 2013 to November 2014 there were 38 patients of chronic HCV infection who attended outpatient clinic of Department of Gastroenterology at TUTH, IOM. Among all patients, 34 (89.5%) were male and 4 (10.5%) were female. The mean age of the study population was 38.34 years \pm 9.64. The highest numbers of cases i.e. 52.6% were found in the age group between 30 to 40 years. The probable risk factors for transmission of HCV infection was observed to be IDU in 21 (55.3%) patients, combined risk of IDU and tattooing in 8 (21.1%), history of blood transfusion in 2 (5.3%) patients, history of surgery in 1 (2.6%) patient, hemodialysis in 1(2.6%) patient and only tattooing in 1(2.6%) patient. Among 4 (10.5%) patients with chronic HCV infection, risk factor for HCV transmission could not be identified (Table 1).

Table 1. Characteristics of Patients(n=38)

Characteristics	Frequency	Percentage
Gender		
Male	34	89.5
Female	4	10.5
Age (years)		
<30	7	18.4
30-40	20	52.6
>40	11	28.9
Possible risk factors		
IDU	21	55.3
IDU+ Tattooing	8	21.1
History of blood transfusion	2	5.3
History of surgery	1	2.6
Tattooing	1	2.6
Hemodialysis	4	10.5
Unidentified		

HCV genotypes		
Genotype 1	17	44.74
Genotype 3	21	55.26
Other Genotypes	0	0

Mean serum ALT and AST level were 86.39 IU/ML \pm 46.96 and 76.08 IU/ML \pm 69.60 respectively. Mean HCV viral load was 3337815.76 IU/ML \pm 5087752.64 (Table 2).

Table 2. Biochemical and virological profile of study population (n=38)

Variables	Results ^a
ALT (IU/ML)	86.39 \pm 46.96
AST (IU/ML)	76.08 \pm 69.60
HCV RNA (IU/ML)	3337815.76 \pm 5087752.64

^aMean \pm SD

HCV genotype 3 was found common in 21 (55.26%) patients and genotype 1 was found in 17(44.74%) patients. HCV genotype 2, 4, 5 and 6 was not found in our study population (Table 1). The statistical analysis showed no significant association between different HCV genotype with mean HCV, viral load as well as mean serum AST and ALT level. (Table 3).

Table 3. Comparisons between HCV genotypes and serum AST, ALT and HCV RNA (n=38)

	Genotype 1 (n=17)	Genotype 3 (n=21)	p value
ALT (IU/ML) ^a	78.35 \pm 45.29	92.90 \pm 48.36	0.349
AST (IU/ML) ^a	71.12 \pm 87.72	80.10 \pm 52.62	0.698
HCV viral load (IU/ML) ^a	3574804.82 \pm 5464909.7	3145967.48 \pm 4889692.57	0.800

^aMean \pm SD

Discussion

This study included 38 patients with chronic HCV infection. Among these patients 89.5% were male and 10.5% were female. Among 38 patients, 34(89.47%) patients had identifiable risk factors for HCV transmission. Injection drug use was most common identifiable risk factor followed by the history of blood transfusion in our study

population which was in concordance with the study conducted by Hu KQ from United States.¹² In similar studies from India conducted by R. Abraham and A. Chakravarti also showed the most common identifiable risk factor for HCV acquisition was history of surgery followed by blood transfusion.^{13,14} The mode of transmission was not identifiable in 10.5% of patients in this study population. A study from India showed that risk factors were not identified in 22.53% of patients.¹⁴ There was no published data on the distribution of different HCV genotypes among HCV infected patients found in Nepal. This study showed genotype 3 (55.26%) as the most common genotype followed by genotype 1 (44.74%).

The relationship between serum liver enzyme and degree of liver damage in chronic HCV infection was still not clear in this study but some studies documented.^{11,15} However, in some studies, there were no relation between serum ALT level and severity of liver damage histologically found.^{13,16} A study done by R. Abraham in India had shown that there was no association between HCV genotype and serum aminotransferases.¹³ However, another study done by A Chakravarti in India had shown that serum AST level was significantly higher in genotype 1 as compared to other genotype.¹⁴ A similar study done in Turkey by S. Rota had demonstrated that the serum level of ALT and AST in HCV genotype 4 were significantly higher than those infected with other genotypes.¹⁷ In this study, there was no significant association between HCV genotype and the mean level of serum ALT level and serum AST level was found. In a study from India conducted by R. Abraham found that serum ALT level correlated poorly with HCV genotype.^{13,14} There was little information regarding the correlation between the HCV genotype and viral load found. Some studies had shown that there was no relationship between the HCV genotype and HCV viral load.^{11,18} A study conducted at Pakistan in 2011 showed a

significant higher HCV viral load in genotype 1 as compared to other genotypes.¹⁹ A similar kind of study done in India also showed that viral load in patients with genotype 1 was significantly higher than other HCV genotypes.¹⁴ In this study, there was no significant association between HCV viral load and HCV genotypes.

Conclusions

In conclusion, this study showed that HCV genotype 3 was the most common genotype followed by genotype 1. Other Genotypes were not found in this study population. This study also revealed that there was no significant relation between the HCV genotypes, serum ALT and serum AST level. Baseline HCV viral load was also not significantly associated with different HCV genotypes.

References

1. **Lavanchy D.** Evolving epidemiology of hepatitis C virus. *Clin Microbiol Infect.* 2011; 17:107-115.
2. **Averhoff FM, Glass N, Holtzman D.** Global burden of hepatitis C: considerations for healthcare providers in the United States. *Clin Infect Dis.* 2012; 55 Suppl 1: S10-5.
3. **Hauri AM, Armstrong GL, Hutin YJ.** The global burden of disease attributable to contaminated injections given in health care settings. *Int J STD AIDS.* 2004; 15:7-16.
4. **Shrestha B.** Serological surveillance of anti-HCV antibody among Nepalese males. *J Nep Health Res Council.* 2006; 4: 7-11.
5. **Karki S, Ghimire P, Tiwari BR, et al.** Trends in hepatitis B and hepatitis C seroprevalence among Nepalese blood donors. *Jpn J Infect Dis.* 2008; 61: 324-326.
6. **Karki S, Ghimire P, Tiwari BR, et al.** Seroprevalence of anti HCV antibodies among blood donors in Kathmandu Valley, Nepal. *Kathmandu Univ Med J.* 2008; 6: 491-496.
7. **Sawayama Y, Hayashi J, Ariyama I, et al.** A ten year serological survey of hepatitis A, B and C viruses infections in Nepal. *J Epidemiol.* 1999; 9:350-354.
8. **Shrestha SM, Subedi NB, Shrestha S, et al.** Epidemiology of hepatitis C virus infection in Nepal. *Trop Gastroenterol.* 1998; 19: 102-104
9. **Lauer GM, Walker BD.** Hepatitis C virus infection. *N Engl J Med.* 2001, 345:41-52.
10. **Poynard T, Yuen MF, Ratzu V, et al.** Viral hepatitis C. *Lancet.* 2003; 362: 2095-2100.
11. **Lee YS, Yoon SK, Chung ES, et al.** The relationship of histological activity to serum ALT, HCV genotype and HCV RNA titers in chronic hepatitis C. *J Korean Med Sci.* 2001; 16: 585-591.
12. **Hu KQ, Yang H, Lin YC, et al.** Clinical Profiles of Chronic Hepatitis C in a Major County Medical Center Outpatient Setting in United States. *Int J Med Sci.* 2004; 1: 92-100.
13. **Abraham R, Ramakrishna B, Balekuduru A, et al.** Clinicopathological features and genotype distribution in patients with hepatitis C virus chronic liver disease. *Indian J Gastroenterol.* 2009; 28: 53-58.
14. **Chakravarti A, Dogra G, Verma V, et al.** Distribution pattern of HCV genotypes & its association with viral load. *Indian J Med Res.* 2011; 133:326-331.
15. **Liu P, Li Y, Sun C.** Correlations of serum hepatitis C virus RNA and alanine transaminase with liver histopathological changes in patients with chronic hepatitis C. *Lab Med.* 2009;40:167-169.
16. **Puoti C, Magrini A, Stati T, et al.** Clinical, histological, and virological features of hepatitis C virus carriers with persistently normal or abnormal alanine transaminase levels. *Hepatology.* 1997; 26: 1393-1398.
17. **Rota S, Fidan I, Lale Z, et al.** Determination of hepatitis C virus genotype in Turkey by pyrosequencing technology and its association with viral load and SGOT, SGPT levels. *Acta Medica Mediterranea.* 2013; 29:397-402.
18. **Adinolfi LE, Utili R, Andreana A, et al.** Relationship between genotypes of hepatitis C virus and histopathological manifestations in chronic hepatitis C patients. *Eur J Gastroenterol Hepatol.* 2000; 12: 299-304.
19. **Ali A, Nisar M, Ahmad H, et al.** Determination of HCV genotypes and viral loads in chronic HCV infected patients of Hazara Pakistan. *Virol J.* 2011; 8: 466.

Correspondence Address: *Dr Dipesh Gurubacharya*, Department of Gastroenterology, Institute of Medicine, Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu, Nepal. Email: dipeshgurubacharya@gmail.com

KNOWLEDGE AND PRACTICE OF STOMA CARE AMONG OSTOMATES AT B.P.KOIRALA MEMORIAL CANCER HOSPITAL

Radha Acharya Pandey, Sandhya Baral Govinda Dhungana

ABSTRACT

Background: There are more than 1 million patients with a permanent colostomy and the number is increasing by the rate of 100 000 per year. Clients with a new stoma must master multiple psychomotor skills to remove their pouch, clean the stoma and peristomal skin and empty and dispose of effluent from the pouch. Stoma care self-efficacy has been positively related to ostomy adjustment.

Objective: To assess knowledge and practice of stoma care among ostomates.

Method: This is a simple descriptive cross sectional study. A total of 94 ostomates who met eligible criteria were purposively sampled. Stoma self care efficacy scale and semi-structured questionnaire was used and face to face interview was done. Data were analyzed using SPSS version 16 program. T test was used to see the mean difference.

Result: The knowledge of ostomates on normal stoma and complication of stoma was adequate (61.7%). Majority (92.6%) respondents had good daily care practice like emptying pouch, hand washing before and after procedure and cleaning stoma. Majority of the ostomates suffered from physical problem (89.4%). Of which maximum 72.3% had peristomal skin irritation, then came leakage and odour. More than half (64.9%) of ostomates had higher efficacy.

Conclusion: On the basis of findings, it is concluded that there was significant difference in mean knowledge of ostomates with variables pre-operative teaching, training on stoma care, living with stoma for more than 12 months. There was significant difference in mean self care efficacy with variables duration of living with stoma and training on stoma care. Thus training on stoma care should be provided frequently to further improve self care efficacy.

Key words: *knowledge, practice, ostomates, stoma care*

INTRODUCTION

the increasing incidence of colorectal cancer and urinary cancer, stoma surgery rate is also increasing. Teaching on stoma care and stoma skills given by enterostomal therapist during post-operative and discharge period enable clients to increase self-efficacy in ostomy management. A variety of gastrointestinal/

genitourinary etiologies may necessitate the creation of a fecal or urinary diversion. These may include colostomy for colon-rectal cancer, diverticular disease, inflammatory bowel disease, intestinal obstruction, gastrointestinal trauma, and gynecological cancers [1]. Urostomy for Bladder Cancer and Congenital abnormalities and ileostomy

for ulcerative colitis, crohn's disease, familial polyposis and complications of cancer [2].

According to hospital based cancer registry in Nepal 2007, Ca Urinary bladder is 6th common in male >64yrs whereas Ca rectum is 6th common in female 15-34 yrs and male 15-34 years [3]. According to medical record unit of B.P. Koirara Memorial Cancer Hospital (BPKMCH), Age and site wise distribution of Cancer patient, 2010, Ca urinary bladder 91, Ca colon 59, Ca rectum 69. Surgery performed in Urology Unit, radical cystectomy with illeal conduit 8, low anterior resection of rectum 6, loop colostomy 4, hemicolectomy 7 [4].

Enterostomal Therapist Shanti Bajracharya first started stoma care in Nepal and opened a clinic in 1996. At the beginning, there were only seven ostomates [5]. According to data of 2010 from stoma clinics of Patan, Nepal Ostomy Association and B&B, shows the total ostomy cases were 2085 of which colostomy 1000, Urostomy 400, Iliostomy 300 [6]. There are more than 1 million patients with a permanent colostomy in China, and the number is increasing by the rate of 100 000 per year Clients with a new ostomy must master multiple psychomotor skills to remove their pouch, clean the ostomy and peristomal skin and empty and dispose of effluent from the pouch [7].

The adverse impacts on stoma patients are physical, psychological and social. The physical problems of ostomates included leakage, skin problems, ballooning and odor [8, 9]. The most common physical problems with the stoma include leaking, peristomal skin problems, and the need for adaptation of stoma appliances and the need for adaptation of clothing to the presence and site of the stoma which has a significant impact on the patient's daily life [10].

It is generally understood that a stoma has a negative impact on people's quality of life. This negative impact can affect self-care practices that may result in inappropriate and costly use of supplies [11]. Stoma care self-efficacy is defined as the conviction by patients that they can successfully manage their stoma to minimize adverse outcomes. Stoma care self-efficacy has been positively related to ostomy adjustment [12].

While no research exists to define a minimum post-operative skill set for clients with a new ostomy, a consensus conference of Ostomy Care and Management Wound, Ostomy and Continence Nurses in the United States, 2007 concluded that the minimum post-operative skill set for persons with an ostomy should include: 1) ability to manipulate the pouch clip or spout if present, and 2) independently empty the pouch. Additional skills that need to be taught, whenever possible, included: 1) bathing, clothing and activity restrictions, 2) review of influence of prescription and over-the-counter medications on ostomy function, 3) influence of diet on ostomy function, 4) peristomal skin care, 5) odour control, 6) monitoring for complications, and 7) sexual counseling [13]. Any failure on the journey to achieving an effective return to normal life may make the treatment and its long term consequences, particularly the stoma, seem worse than the original illness [14].

Methods

Descriptive cross sectional research design was used in stoma clinic of B.P. Koirala Memorial Cancer Hospital (BPKMCH). Being a national level cancer care referral centre in Nepal, most of the colorectal cancer and urinary bladder cancer cases are treated with stoma surgery. Study population ostomates more than 19 yrs of age and performing self-care and who were attending stoma clinic during the time of data collection. A total of 94 respondents, who

met eligible criteria were purposively sampled and interviewed face to face.

A structured and semi-structured interview schedule consisting of demographic characteristics, knowledge and practice related questions developed by reviewing literature. The content validity of the instrument was established seeking opinion of oncologist and related experts nurses and doctors. The instrument was then translated into Nepali language and opinion of language expert was obtained for comprehensibility and simplicity of language and for consistency of the content. The study was conducted after obtaining approval from the concerned authority. Anonymity, privacy and confidentiality were maintained during as well as after data collection.

All patients who met the criteria and who gave informed consent were interviewed. Review of the patient's medical record file was done to confirm the diagnosis of ostomates. The collected data were reviewed daily for completeness and accuracy. Edited data were entered into the Statistical Package for Social Science Software (SPSS) version 16.0 for statistical analysis using descriptive and inferential statistics.

RESULTS

Table 1: Socio-demographic information:
N=94

Variables	Frequency	Percent
Gender		
Male	58	61.7
Female	36	38.3
Age (years)		
20-29		
30-39	10	10.6
40-49	20	21.3
50-59	15	16.0
60-69	20	21.3
70 years and above	24	25.5
	5	5.3

Education level		
Illiterate		
Can read and write		
Primary(class 1-8)		
Lower secondary(class 9-10)	16	17.0
Higher secondary(class 11-12)	22	23.4
Higher education (above 12)	25	26.6
	12	12.8
	13	13.8
	6	6.4
Type of stoma		
Colostomy		
Ileostomy	66	70.2
Urostomy	8	8.5
	20	21.3
Duration of living with stoma		
■ 12 months	44	46.8
>12 months	50	53.2
Duration of post-operative hospitalization		
■ 15 days	36	38.3
>15 days	58	61.7
Training on stoma care		
No	66	70.2
Yes	28	29.8
Pre-operative teaching		
No	30	31.9
Yes	64	68.1

There were more males than females, comprising of 61.7% and 38.3% respectively. The age group 60-69 years which is the largest age group comprises 25.5%. The mean age of the respondents was 48.9 years and range 21 to 80 years. Regarding the educational level of respondents 17% were illiterate, 23.4% could read and write, 26.6% primary education. Most of the ostomates 70.2% had colostomy, 21.3% had urostomy and rest 8.5% had ileostomy.

Majority, 61.7% had post-operative hospitalization of more than 15 days, 38.3% had post-operative hospitalization of less than or equal to 15 days. Maximum duration of post-operative hospitalization was 90 days, minimum was 6 days. Regarding duration of

living with stoma, 53.2% of ostomates were living with stoma for more than 12 months and the rest 46.8% for less than or equal to 12 months. The mean duration of living with stoma was 26.41 months and standard deviation was 3.2419. Maximum duration of living with stoma was 216 months (18 years). Training on stoma care was received least 29.8% ostomates whereas majority 70.2% did not receive training on stoma. Pre-operative teaching on stoma was provided during stoma site marking and at OPD before consent by concerned doctor that include 68.1%, remaining 31.9% did not receive pre-operative teaching (Table 1).

Table 2: Ostomates Knowledge regarding Normal Stoma N = 94

Knowledge on stoma	Frequency	Percent
Color of normal stoma		
Red	64	68.1
Pale	3	3.2
Black	-	-
Don't know	27	28.7
Appearance of normal stoma		
Shiny and moist	45	47.9
Has nodules	1	1.1
Has cuts and tears	1	1.1
Don't know	47	50.0
Normal peristomal skin condition		
Similar to other skin	61	64.9
Red	2	2.1
Painful to touch	4	4.3
Don't know	27	28.7

Majority 68.1% ostomates have told that the color of normal stoma is red, 47.9% knew that normal stoma must be shiny and moist. Half (50%) of the ostomates replied that they don't know the appearance of normal stoma. And 64.9% knew that the normal peristomal skin condition should be similar to normal skin of other body part (Table 2).

Table 3: Ostomates Knowledge regarding Complication of Stoma N= 94

Knowledge on complication	Frequency	Percent
Black coloured stoma is normal		
No	53	56.4
Yes	2	2.1
Don't know	39	41.5
Stoma protruded >2 inch is normal		
No	56	59.6
Yes	1	1.1
Don't know	37	39.4
Continued bleeding from inside stoma for >10 min is normal		
No	76	80.9
Yes	-	-
Don't know	18	19.1

The data illustrates that 56.4% ostomates knew it was not normal to have black coloured stoma, 59.6% knew it was not normal to have stoma protruded >2 inch and 80.9% knew it was not normal to have continued bleeding from inside the stoma for >10 min (Table 3).

Table 4: Daily care practices N= 94

Practices	Frequency	Percent
Handwashing before procedure		
Yes	79	84.0
No	15	16.0
Handwashing after procedure		
Yes	94	100.0
No	-	-

Practice of emptying stoma pouch		
Totally filled	3	3.2
Half filled	45	47.9
1/3rd filled	41	43.6
<1/3 rd	4	4.3
Others	1	1.1
Technique of cleaning stoma		
Periphery to centre	71	75.5
Centre to periphery	23	24.5

In the daily care practices of ostomates, 84% ostomates perform hand washing before cleaning stoma and changing stoma bag where as all of them perform hand washing after the procedure. Likewise 47.9% of ostomates empty the pouch when it is half filled, 43.6% of ostomates empty pouch whenever pouch is 1/3rd filled, 4.3% empty it in <1/3rd filled. Remaining 1.1% empty the pouch whenever they feel it uncomfortable. 75.5% of ostomates clean stoma from periphery to centre and remaining clean from centre to periphery (Table 4).

Table 5: Practices regarding Physical Problem and management N=94

Physical problems and management	Frequency	Percent
Physical problem related to stoma		
Yes	84	89.4
No	10	10.6
Physical Problems		
Leakage	42	44.7
Peristomal skin irritation	68	72.3
Odour	18	19.1

Practice regarding physical problem		
Solving peristomal skin irritation		
Use of stoma powder		
Attend stoma clinic		
Clean stoma and change pouch if liquid seeps under barrier	52	55.3
Others	3	3.2
	21	22.3
	4	4.3

Solving Leakage		
Reducing size of aperture of flange of pouch		
Use 2 piece pouch	16	17
Check adhesive pad for proper seal	10	10.6
Others	26	27.7
	4	4.3

Solving odour		
Change diet	10	10.6
Increased fluid intake	2	2.1
Use deodrant	3	3.2
Others	1	1.1

(multiple response answer)

Physical problems due to stoma are unavoidable as majority 89.4% ostomates were having physical problem due to stoma formation. Among them 72.3% had peristomal skin irritation, 44.7% had leakage and 19.1% had odour problem. Of the 72.3% having peri-stomal skin irritation, 55.3% use stoma powder, 3.2% attend stoma clinic, 22.3% clean stoma and change pouch if liquid seeps under barrier and remaining 4.3% in others consists of use of savlon, detol and cream to solve peri-stomal skin irritation. Of the 44.7% having stoma leakage, 27.7% clean stoma and check adhesive pad for proper seal, 17% clean stoma and reduce the size of the aperture of flange of pouch, 10.6% clean stoma and prefer use of 2 piece pouch to reduce leakage and remaining 4.3% in others include use of stoma belt, extra adhesive glue and tape. Of the 19.1% having odour

problem, 10.6% change diet, 2.1% increase fluid intake, 3.2% use deodorant, 1.1% in (Table 6). others do nothing to solve it (Table 5).

Table 6: Ostomates Self Care Efficacy N=94

Items	1 Not confident	2 Slightly confident	3 Fairly confident	4 Highly confident	5 Extremely confident	Mean Score ± SD
Apply the stoma collection materials before leakages appear.	34 (36.2)	-	7(7.4)	42(44.7)	11 (11.7)	2.95 ±1.54
Prevent having leakages.	34 (36.2)	2 (2.1)	11 (11.7)	38 (40.4)	9 (9.6)	2.85 ±1.50
Take care of the stoma in the right way at home.	7 (7.4)	26 (27.7)	4 (4.3)	47 (50.0)	10 (10.6)	3.28±1.19
Prevent having skin problems.	24 (25.5)	11 (11.7)	20 (21.3)	29 (30.9)	10 (10.6)	2.89±1.37
Prevent having stoma bleeding and damage.	35 (37.2)	4 (4.3)	28(29.8)	18(19.1)	9(9.6)	2.59±1.40
Apply the stoma collection materials in the way you learned to do.	33(35.1)	-	4(4.3)	47(50.0)	10 (10.6)	3.01±1.53
Prevent having obstruction.	11(11.7)	25(26.6)	6(6.4)	42(44.7)	10(10.6)	3.15±1.26
Follow the nurse's instructions for handling the stoma.	11(11.7)	21(22.3)	4(4.3)	48(51.1)	10(10.6)	3.26±1.25
Follow the doctor's advice for taking care of your stoma and nutrition pattern.	-	1(1.1)	40(42.6)	40 (42.6)	13(13.8)	3.69 ±0.71
Take care of the stoma in the right way outdoors.	33(35.1)	2(2.1)	26(27.7)	27(28.7)	6(6.4)	2.69±1.37
Take care of the stoma when you are ill.	33(35.1)	10(10.6)	26(27.7)	20(21.3)	5(5.3)	2.51 ±1.30
Wear most of the clothes you like.	18 (19.1)	18(19.1)	25 (26.6)	27 (28.7)	6(6.4)	2.84 ±1.22
Carry out light duties in and around the house (for instance washing up and gardening).	15 (16)	10(10.6)	28(29.8)	25(26.6)	16(17.0)	2.84±1.29

Values in () represents percentage.

Self-care efficacy of ostomy management act as enablers as they struggle to re-establish a sense of normalcy following stoma surgery. Highest mean score was on statement "Follow the doctor's advice for taking care of stoma and nutrition pattern." Lowest mean score was on "Take care of stoma when you are ill." Mean self-care score= 38.94 ± 1.55. Minimum score 13 and maximum score 65

Knowledge	Score	N	%	Mean ± SD
Adequate Knowledge	≥3 (≥50%)	58	61.7	3.77 ±
Inadequate Knowledge	<3 (<50%)	36	38.3	2.01

Table 7: Overall Knowledge Score: N=94

The data in table illustrates that more than half (61.7%) respondents have adequate knowledge of normal stoma and

complications. The mean knowledge score was 3.77 ± 2.01 (Table 7).

Table 8: Overall Daily Care Practice Score: N=94

Daily care practice	Score	Frequency	Percentage	Mean \pm SD
Good practice	≤ 2 ($\leq 50\%$)	87	92.6	3.55 ± 0.63
Poor practice	> 2 ($> 50\%$)	7	7.4	

Majority (92.6%) had good practice regarding daily care practices like hand washing before and after procedure, pattern of emptying the pouch and cleaning the stoma from periphery to centre. The mean score was 3.55 ± 0.63 (Table 8).

Table 9: Overall Self Care Efficacy Score N=94

Self care efficacy	Score	Frequency	Percentage	Mean \pm SD
Lower efficacy	< 33 ($< 50\%$)	33	35.1	38.94 ± 1.55
Higher efficacy	≥ 33 ($\geq 50\%$)	61	64.9	

Most of the respondents (64.9%) had higher efficacy in self care. The mean self care score was 38.94 ± 1.55 . (Table 9)

Table 10: Comparison of mean difference of Knowledge with Variables: N=94

Variables	Frequency	Possible score	Mean	Std. Deviation	t value	p value
Education level	Illiterate	16	3.31	2.24	-1.01	0.31
	Literate	78	3.87	1.96		
Pre operative teaching	No	30	4.40	1.73	2.09	0.03
	Yes	64	3.48	2.07		
Training on stoma care	No	66	3.25	2.07	-4.165	0.00
	Yes	28	5.00	1.15		
Duration of living with stoma	≤ 12 months	44	3.18	2.08	-2.78	0.00
	> 12 months	50	4.30	1.80		

The mean knowledge score of illiterate was 3.31 and that of literate was 3.87, which is slightly different but it is statistically insignificant since p value is 0.314.

The mean knowledge score of ostomates receiving and not receiving pre-operative teaching were 4.40 and 3.48 respectively. The

difference is statistically significant since p value is 0.03.

The mean knowledge score of ostomates receiving training was 5.00 and that of not receiving training was 3.25, which is significantly significant as p value is 0.00.

The mean knowledge score of ostomates living with stoma for \leq 12 months was 3.18 and that of living with stoma for $>$ 12 months

was 4.30, which is significantly different as p value is 0.00 (Table 10).

Table 11: Comparison of mean Self Care Efficacy with Variables N=94

Variables	Frequency	Possible score	Mean	Std. Deviation	t value	p value
Age	<65 years	84	39.05	15.52	0.22	0.82
	\geq 65 years	10	37.90	16.25		
Education level	Illiterate	16	38.18	15.20	-0.21	0.83
	literate	78	39.08	15.66		
Duration of living with stoma	\leq 12 months	44	31.63	14.55	-4.74	0.00
	$>$ 12 months	50	45.36	13.45		
Training on stoma care	No	66	34.77	14.79	4.36	0.00
	Yes	28	48.75	12.64		
Duration of post-operative hospitalization	\leq 15 days	36	35.58	15.49	-1.66	0.09
	$>$ 15 days	58	41.01	15.29		

The mean self-care efficacy score of old adults was 37.05 and others was 39.05, which is slightly different but it is statistically insignificant since p value is 0.82.

The mean self-care efficacy score of illiterate was 38.18 and literate was 39.08, which is slightly different but it is statistically insignificant since p value is 0.83.

The mean self care efficacy score of ostomates living with stoma for \leq 12 months was 31.63 but that of living with stoma for $>$ 12 months was 45.36, which is statistically significant as p value is 0.00.

The mean self care efficacy score of ostomates receiving training was 48.75 and that of not receiving training was 34.77, which is significantly different as p value is 0.00.

The mean self care efficacy score of ostomates having duration of post operative hospitalization \leq 15 days was 35.58 and that of $>$ 15 days was 41.01, which is slightly

different but statistically insignificant as p value is 0.09 (Table 11).

Table 12: Comparison between mean Self Care Efficacy and Knowledge N=94

Know ledge	Frequ ency	Poss ible scor e	M ea n	Std. Devi ation	t val ue	p val ue
Inade quate knowl edge	36	13-65	31.58	14.17	-3.88	0.00
Adequ ate knowl edge	58	65	43.50	14.62		

The mean self care efficacy of ostomates having inadequate knowledge was 31.58 whereas having adequate knowledge was

43.50, which is statistically significant as p value is 0.00 (Table 12).

Discussion

The socio-demographic findings of the study revealed that most of the respondents (61.7%) were male. The findings were similar to the study done among patients of colorectal cancer resulting in an ostomy, which was seen more in males and a urostomy for bladder cancer was predominately associated with males.(1) The mean age of the respondents was 48.9 years (range 21-80 years), which is similar to the study in Iran in which mean age was 57.49 years (SD 12.28 years) [15].

In this study majority (70.2%) had colostomy. Most of the respondents (61.7%) had post-operative hospitalization of >15 days. Regarding duration of living with stoma, more than half ostomates (53.2%) were living with stoma for > 12 months. Majority of ostomates (70.2%) visiting stoma clinic had not received training on stoma care. Pre-operative teaching on stoma was provided during stoma site marking and at OPD before consent by concerned doctors. Among the respondents majority 68.1% had received pre-operative teaching.

An Interventional study was done among Permanent Colostomy in china to assess knowledge about colostomy care, colostomy products, prevention and treatment of complications, types and storage of colostomy bags, and colostomy irrigation. Higher scores represent higher level of knowledge. The result showed pre-course mean [SD] was knowledge 51.89 [11.45]. Similarly self care efficacy was 71.56 [5.93] [7]. In this study the overall knowledge of respondents on normal stoma and stoma related complication is 61.7%. Mean [SD]: 3.77 [2.01]. Higher self care efficacy was 64.9%. Mean [SD] self care efficacy was 38.94 [1.55].

Similar study was done among stoma patients in Taiwan using a randomised experimental design. Stoma patients were randomly assigned to multimedia learning education program and a conventional education service program with a follow-up of one week. Knowledge of self care scale consisting of 22 items related to: anatomy of stoma, types of pouching systems and types of accessories was used and was rated on a dichotomized scale (1, right; 0, wrong). The pretest mean [SD] scores in Knowledge of Self Care was 7.30 [3.97] [16].

In a descriptive study done to examine adjustment and its relationship with stoma care self-efficacy, among patients using 13 point Self-efficacy Scale in UK. Higher scores correspond to higher levels of confidence. Stoma-care self-efficacy accounted for 57.5% [12]. The finding is similar to this study in which higher self care efficacy of ostomates comprises of 64.9%.

In this study there is no significant difference in mean self care efficacy between old adult and others, illiterate and literate. This is in contrast to the study done on self efficacy and quality of life among stoma patients in Hong Kong in which factors associated with lower self efficacy included increasing age, lower education level [17].

In a cross-sectional study done to assess Self-efficacy and the related factors in ostomates among patients with ostomy in Iran using personal information form and Stoma Self-Efficacy Scale (Stoma SE Scale), half of the participants gained at least half of the overall self-efficacy scores. The mean score of social self-efficacy was lower than the mean score of stoma care self-efficacy. Self-efficacy was associated with marital status, stoma status and stoma duration ($P<0.05$) but the relationship between self-efficacy and age, gender, educational level, type of stoma and

reason of stoma was not statistically significant [18]. These findings are similar to this study as there was significant difference in stoma duration but not with age and education level.

In a study done to study peristomal skin disorder in patient with permanent stomas peristomal skin irritation accounts for 72.3% of physical problem due to stoma [19]. This is similar to this study where physical problem due to stoma accounts for 89.4%.

Conclusion

This study finding shows majority of ostomates suffer from physical problem. Hence it is recommended to concerned authority to identify reason behind it and conduct package training program to reduce physical problem.

REFERENCES

1. **Beitz J.** Gastrointestinal etiologies leading to a fecal diversion. *Disease of colon and rectum*.2004;136-159.
2. **Fulham J.** A guide to caring for patients with a newly formed stoma in the acute hospital setting. *Gastrointestinal nursing*. 2008;6(8).
3. **Pradhananga K, Baral, M., Shrestha, BM.** Multi-institution hospital based cancer incidence data for Nepal- An initial report. *Asia Pacific Journal of Cancer Prevention*. 2009;10:259-62.
4. **BPKMCH.** Annual Report-2010. 2010:33, 76.
5. **Bajracharya S.** The Road of Stoma Care in Nepal. *World Council of Enterostomal Therapist* 2010:8-10
6. **Izard S.** Case study-stoma care in Nepal. *The Outlet- New Zealand stomal therapy Nurses*. 2010:6.
7. **Cheng F, Xu, Q., Dai, XD., Yang, LI.** Evaluation of the Expert Patient Program in a Chinese Population With Permanent Colostomy. *Cancer NursingTM*.2012;35:1, nE27.
8. **Silva M, Ratnayake, G., Deen, KI.** Quality of life of stoma patients: temporary ileostomy versus colostomy. *World journal of surgery*. 2003(27):421-424.
9. **Ross L, Abild-Nielsen, AG., Thomsen, BL., Karlsen, RV., Boesen, EH., Johansen, C.** Quality of life of Danish colorectal cancer patients with and without a stoma. *Supportive Care in Cancer*. 2007;15(5):505-513.
10. **Gooszen A, Geelkerken, RH., Hermans, J.,lagaay,MB., Gooszen, HG.** Quality of life with a temporary stoma: Ileostomy Vs colostomy. *Disease of Colon and Rectum*. 2000:650-655.
11. **Strode D.** How do people adjust to living with stoma? A nurses search for literature. *journal of clinical Nursing*.2009.(1):76.
12. **Simmons K, Smith, J., Bobb, K., Liles, L.** Adjustment to colostomy: stoma acceptance, stoma care self-efficacy, and interpersonal relationships *The AuthorsJournal compilation, JAN Original Research*. 2007:627-635.
13. **Colwell JC, Gray, M.** Does preoperative teaching and stoma site marking affect surgical outcomes in patients undergoing ostomy surgery? *Journal of Wound, Ostomy and Continence Nursing*. 2007;34(5):492-496.
14. **Diament H.** Clinical nurse specialists Stoma care. *Journal of Wound , Ostomy Continence*. 2009:525.
15. **Mahjoubi.B.** MA, Mirzaei. L., Bijari. A., . Evaluation of end colostomy complications and the risk factors influencing them in Iranian patients. *Colorectal Disease*. 2005;7(6):582-587.
16. **Lo S, Wang, YT., Wu, LY., Hsu, MY., Chang,SC., Hayter, M.** A cost-effectiveness analysis of a multimedia learning education program for stoma patients. *Journal of clinical nursing*. 2009(19):1844-54.
17. **Wu HK-M, Chau, J. P.- C., Twinn, S.** Self-efficacy and quality of life among stoma patients in Hong Kong. *Cancer Nursing*. 2007; 30(3):186-93.
18. **Rafii. F. NL, Parvizy. S., Haghani. H.** Self-efficacy and the Related Factors in Ostomates. *Iran Journal of Nursing*. 2012;24(73):8-18.
19. **Herlufsen P, Olsen, AG., Carlsen, B., Nybaek, H., Karlsmark, T., Laursen, TN., et al.** Study of peristomal skin disorders in patients with permanent stomas. *British Journal of Nursing*. 2006;15(16):854-62.

Correspondence Address: Radha Acharya Pandey, Assistant Professor, Nursing, Kathmandu University School of Medical Sciences, Dhulikhel Hospital, Dhulikhel, Kavre

LIVED EXPERIENCE OF INFERTILITY AMONG COMMUNITY DWELLING INFERTILE WOMEN

Bishnu Bista (Thapa)

Abstract

Objective: The aim of this study was to investigate the lived experiences of infertility among infertile women in Jhapa.

Methods: A descriptive phenomenological research design was utilized that is supported by philosophy of Edmund Husserl. Seven informants, who were having infertility problems selected for in-depth interviews, utilized purposive sampling technique. Information gathered from two Focused Group Discussions that included 20 participants and five key informants' interviews were conducted to triangulate data source which obtained from study informants. Data were recorded and transcribed verbatim later. Transcribes were deducted to extract actual meanings through coding, categorizing and organized into theme clusters.

Results: Informants experienced any one or all form of abuse like physical, emotional, psychological, societal or marital. Severity of torture depend on who had fertility related problems and infertile woman's position in husband's house. They believed their infertility problems are deeply rooted with social and cultural stigma of the society. Women, who were young and less than 15years of marriage duration, had more hope to become mother. Due to economic hardship and limited family support, they could not access to utilize Assisted Reproductive technologies.

Conclusion: though the up lift of education, media and local non-governmental organizations support and changing concepts of society, infertile women experienced risk of being isolated in social activities, threaten to divorce and remarry by husband. Accepting the realities, supporting and understanding of each other's' limitations are core factor of husband wife relationship.

Keywords: *Gender, Infertile Women, Lived experience, Marital disturbances*

Introduction

Infertility is one of the neglected public health problems around the world. WHO¹ estimated the number of infertile couple between 8 to 12%, and one out of every ten couples; roughly 60 to 80 million men and women globally have difficulty to conceive, majority of who live in developing countries. Negative consequences of childlessness are experienced to a greater degree in developing countries when compared with western societies². Infertility has profound medical & social consequences that affect both men &

women in all parts of the world¹. It appears obvious that the social consequences of infertility are particularly harsh for women as compared to men³. In the society where the children have a special value, infertility is often a social stigma⁴.

The illiterate group attributed the causes of their infertility to supernatural causes while the educated group blamed nutritional, marital and psychosexual factors for their infertility⁵. Ramezanzaden⁶ revealed that psychological consequences of infertility is directly

associated with duration of marital life. Depression and anxiety are most common after 4 to 6 years of infertility. Especially severe depression could be found in those who had infertility for 7 to 9 years, 40.8% infertile women had depression and 86.8% had anxiety.

Infertility can lead to severe strain in a couple's relationship, their childlessness is a major theme of their lives, children are highly desired, parenthood is culturally mandatory & childlessness socially unacceptable⁷. Malpani and Malpani⁸ highlighted that how the Indian culture placed value on having children. They mentioned that a barren woman is considered to be cursed by god, and being punished for the sins of a prior life. Infertile couples are easy and soft target for everyone - ranging from: *"friends: life is incomplete without a baby! In-laws: when will I become a grandmother? Relatives: what do they want to earn money for; they do not have any children to leave it to! Co-workers: you don't have any kids, so can you stay on a little longer to finish this job - I need to go back to take care of my children!"*

In Nepal, women comprise 50.5% of total population⁹ but have one of the highest incidences of son preference in the world¹⁰. Adequate studies are not availability about prevalence & consequences of infertility. NDHS¹¹ also does not include any data about infertility. Survey in eight districts of Nepal found 7.4% of females having infertility problem¹². In Bajhang district, a gynaecological camp showed that 14.2% women had sub-fertility morbidity¹³.

In condition of second marriage, Article 11 of Nepal's 1990 constitution which guarantees that "No discrimination shall be made against any citizen in the application of general laws on the grounds of sex". The court ruled that the government is under the obligation to

adopt legislation that guarantees equality between husbands and wives¹⁴. Though in realities, the infertile women live with a permanent threat to be divorces, or to continue living in a polygamous family that make her to compromise quality of lifestyle and victims of such problems. It helps to explore the impact of infertility in their life, family and society. Therefore the investigator is interested & felt the need for this type of research.

Method

A descriptive phenomenological research design was used to explore the lived experiences of infertility among the women who had infertility related problems and how they interpret their experiences. The study was conducted in selected village Development Committees (VDC) of Jhapa district. Seven study informants were recruited through snowball sampling technique who met the inclusion criteria like infertile woman who wants to have a child but involuntarily infertile for at least four years after marriage, with actively participation in sexual life without any use of contraception. For the focus group discussion, involved both men and women who have been staying for long period in the targeted community. A key informant involved in interview was selected from their long-standing experiences that were local traditional healer, FCHV, government health personnel, social worker and from local community based organization leader.

To get a similar outline of the discussions we developed an individual interview guideline and focus group guide. The discussions were focused the perceived meaning, recognition and health seeking behavior as well as impact on physical, psychological, social, and economic and marital aspect of consequences of infertility. As needed verbal clues and probing was done to the participants to clarify

and gain more details to understand their experiences. Interviews and FGDs were conducted in Nepali and the sessions were recorded by audio-tape. Before proceeding with data collection, administrative approval was obtained from the concerned authorities. Two sessions of Focus Group Discussion held with twelve females and eight males separately. Five key informants were also involved for interviews. Obtained information used for triangulation of the data provided by study informants. The process of data analysis started along with data collection. Data was analyzed in three stages as described by Miles & Huberman¹⁵ which included data display, data reduction and data interpretation. The extracted statements were organized in clusters of themes. The themes were described and validated by giving the evidence of verbatim of the subjects.

Results

The results are presented into demographic profile of informants and theme clusters that describes the content of this section. Some illustrative quotations are also included in the text.

Socio-Demographic Profile of Informants

The range of age of study informants were 22-40 years and their marriage duration ranged from 6- 25 years. Most of them were from Brahmin ethnic background and believed in Hinduism. Most of their economic dependency was with their family and live in joint family. Five of seven were 1st wife of their husband and others were 2nd wives.

Defining Infertility

The terms used for understanding of infertility have nearly similar and acceptable in the locality & usually used it to entitle for infertile person. The most common word for infertile women- 'Banjhi', 'Bahila', and 'Aputri' and 'Alaxini'; for males- 'Aputro'

and 'Namarda'; for both (men and women)- 'Nisantan' & 'Aputali' were popular.

Perceived Recognition of Infertility

Informants had different perceived experience related to their infertility. Women who were 1st wife of their husband; they did not realize they had fertility problems for 3-4 years of their marital life. They had under pressure when their husband and in laws started to accuse them, 'why do not you become pregnant? It has been too long period for marriage and living with husband, we need grandson in our home'. The most common clue for recognition of infertility problems were family history of infertility, ragging and verbal abused by others and self-doubt of failure to conceive. Women who were second wife of their husband, wished to become pregnant soon. They suspected being second wife of husband and not having children after 1-2 years of marriage which avoid them being pregnant like their step.

From FGDs, it was concluded in past, people were unknown about who had infertility and seeking for treatment. They waited eight to ten years for birth of baby, if not happened, family members solely blamed to woman rather men for causes of infertility and had done 2nd marriage of husband. Second marriage was common and accepted in son-preferred society even if they had only daughters. Even some of men had up to fifth marriage to prove they had power of fertility. Now, people started further checkup before to blame each other and confirm that who has the fertility problems. In average, if couples failed to conceive during three to five year's period then considered as something wrong with them.

Causes of Infertility

All informants had already done more less clinical examination so that they were nearly aware and perceived what avoid them to become pregnant. Three informants perceived they had some degree of fertility weakness

like no life time experienced of menstruation, dyspareunia, small size or enlarged uterus, small tumor and less fluid collection in uterus, frequently having lower abdominal pain, heavy bleeding during menstruation, weakness and stress; after husbands second marriage step had child within year etc. Three out of seven perceived that being childlessness is not their weakness; it's due to fertility problems present in their husbands such as impotence, premature ejaculatory problem, less ejaculation of seminal fluid, strongly refused to visit for checkup, family history of infertility within brotherhood, heavy smoking and alcoholic habits, history of step had not conceived during long period of marital life. One informant mentioned that both of them had unexplained causes of infertility. Mrs. F disclosed that *“doctor had already said both of us have some degree of infertility problems. My left fallopian tube was blocked and in husband low sperms functions and count. I believed my husband had got more fertility related problem because he has impotence, only 2-3drops of fluid ejaculate after prolong (sometimes it takes 2-3hours) physical sex. Since one to two years, his habit of smoking and alcohol was increasing which might destruct sperms production.”*

Findings from FGDs also supported that most common infertility problems occurs in females were due to infection of uterus, hormonal causes, physical weakness, menstrual disturbances and tube blocked. Usually causes of men infertility involve abnormalities of sperm and impotence. However the problems have been presented only in man but blame always go to women. *“In our family, even small one mistake of daughter in law was pointed as a big issue but for son, they overlooked his hundred mistakes”*. (Female, FGD). Key Informants justifies that hiding attitude and delay seeking treatment, more women suffered from pelvic

inflammatory disease, STIs, uterine problems and other infections that results cause of infertility. The traditional healer shared that *“I suspect infertility in women when they complained severe pain and discomfort in lower abdomen, heavy menstrual bleeding, irregular periods, loss of interest in food habits and physical weakness and men impotence as the most frequent complained”*.

Health Seeking Behavior

Most of the informants visited hospitals and traditional healers wherever they came to know for infertility treatment. Despite of unbelief in traditional healer some informants visited to them for 2-3 years because of in laws and friends suggestions. Informants spent much money in traditional treatment like astrologer, sacred offering. Few of them reported that often they visited to aurvedic doctor.

Almost all informants disclosed that family and relatives were main source where to go for infertility treatment. But, in laws and husband were final decision makers to permit for infertility treatment. Some participants visited to health clinics or hospital secretly with help of friends or relatives to confirm whether they had fertility related problem or not before discussion with husband and family members.

Practices of Treating Infertility

Traditional Methods

“My in laws offered the Haribangsha Saptaha Pura to get mercy of god to see grandchild”, said by Mrs D. All the informants kept the fasting prayer with the name of different of god and goddess to get blessing. Most of them performed the rituals of sacrifice goat and birds (cock, pigeon) in a temple or river, drank uncooked blood of vowed animals, frequently ate uncooked rice (Axata), sacrificed cloths, metals and aluminums articles with the hope to becoming mother soon. Few informants had history of using

prayer locket in arm, neck or waist to protect from evil eyes.

Findings from FGDs also supported the traditional treatment practices of study informants. FGDs participants summarized that traditional healers and astrologers were the first persons who advised and treated for infertility in community. One of the participants shared that (male, FGD) *"I was born after my grandparents visited to worship of god in Kedar (the most famous Hindu god temple, India) for grandson"*.

Modern Methods

Everyone informants claimed that they visited to hospital or clinic and received some kind of treatments. They had done USG, blood test and vaginal examination. Except three informants' husband, all had done sperm analysis and only one had found normal semen analysis report. Husband of two informants refused to clinical examination and one thought that his wife had anovulatory problems so he supposed not having infertility. Most of the participants were treated by injections or oral medicine either single or both partner. One participant received IUI procedure as well. Everybody wanted to become mother but due to financial circumstances and less support from husband or in laws, they could not continue their follow up visit.

Key informants highlighted that usually clients were less interested to visit health center with complained of infertility. If anyone comes, key informants referred to them in hospital or gynecologist clinic. *"In past, only women came for checkup but now, usually both couple goes to the hospital to find out who has the infertility problem"*

(H.A. from health post)

Coping Behaviors of Informants

In response of how do you cope with infertility problems, three informants declared that no further hope of being expected in

future. Some of them believed in *"In-Vitro fertilization"*. They were well informed about test tube baby as a treatment of infertility, available in Siliguri (India) and Kathmandu. Although, they had strong desire to have own baby, they were helpless due to expensive treatment and poor family support system. One of the informants adapted the brother in law's daughter since 8-9 years. Similarly, one informant expressed her grief *"I hit axe into my own foot by forcing husband's second marriage. My step gave a birth of baby girl last year; result my husband left me alone and lived with step and daughter. Now, I had small grocery shop from where I manage my life"*. Most of informants mentioned that no any definite future plan and shaving money for old age. They were planning to save money for future but they have not started yet.

Consequences of Infertility

Social Value of Children

Children were mandatory in society. Most of the FGDs participants expressed that two children are sufficient. In past, people preferred many children especially son, they believed that who have many sons they were rich in society. Male FGD said one says *"jaska dherai chhora ushko dherai dhan, jaska dherai gaebastu usko dherai ban"*. The concept of son preference is slowly changing now. People wished, they had at least one or two children whether son or daughter. Parents could not raring & caring properly if they had more than two children.

Majority of the participants expressed that children are necessary for performing rite and rituals, look after family property, send the ancestors into heaven, bridging generation, proving them completeness as a man and woman, securing strong status within family and husband, performing funeral activities. Some participants thought that being a childless is worthless life, and it is misfortune due to punishment of previous life activities.

“Grandchildren are the golden gift of god, without seeing their face, we cannot reach to heaven after dead. I do not want to end my family identity after my death. I need son not only daughter” (Female FGD).

Social Status of Infertile Women

Participants from FGDs and Key informants reported that barren women have low status in all spheres of their personal and professional life. It depends upon who has infertility problems. If fertility weakness presented with husband family members as well as husband support her and nothing to say. But, if it has with woman, most of the time husband and in laws made the situation difficult to live her together; she had two options either lives accepting tortures and violence or leaves the husband's house. Culturally, women could not leave her husband in condition of his infertility, accept that misfortune as a part of her life, being a childless for whole life and take care of husband and his family. Husband often threatens wife for next marriage even he knows he has a problem. Most of the men are willing or family force to have second marriage if they are fit for fertility. Polygamy practices are life-long traumatic and distress event for women. In past, in laws and elders had not accepted to have a cup of water from infertile women's hand.

Stigmatization by Society and Family

In the past, society solely blamed the women for infertility and neglected form house. Society would not allow her to touch anything in religious ceremonies eg temple, prayer, funeral, pregnancy and newborn related functions etc. Mrs A, Mrs D said that *“People were looking for where and when to humiliate or criticize to us. By saying, I saw her in morning, the day will go worse”*. Mrs G ventilated that *“my husband and in laws always remind me come soon home, do not talk with others in familiar way, especially men..... my son becomes childless; I need a*

light “chirag” for my family. If you could not give grandchild, we would bring next daughter in law.....”.

In past, infertile couples most stayed in distance from their parents & brotherhood, with getting less property, saying, why they needed more without having any children to leave it. Three informants shared that according to Hindu religion, people do not want barren couple participates their rituals functions so they avoided attending. People back bitted that seeing infertile couple's face early in the morning was bad luck for whole day.

Marital Relationship

Four informants disclosed that they had marital harmony. However, the infertile women were always afraid of risk of divorce or remarry of their husband compared with participants who were second wife of their husband. One of respondents experienced limited communication with her husband though they were two members in family. She felt herself as compromise marital relationship, due to strongly defended against remarriage of husband in past. One of the participants reported that her marital relationship almost broke up because of 2nd marriage. He's never made any phone calls for a long period. She had been living alone. One participant reported that she suggested him for second marriage but he was against the idea of that. He convenience her that he did not need any child from other woman, let she accepted what they had and enjoyed with it. *Mrs F said that “From last year, every moment, I am scared when my husband brought step. Every day I suffered from emotional violence like, he had not satisfied with me (specially sexual relationship). He forced me to watch blue films and tried to have sex like that but I refused it. We have limited talk.... He threatens me for his second marriage and become a father. He blames me*

that I am fate for him..., get lost from his house... and life..... Because of you my dream house is going to destroy. Though, both of us have some infertility problems. He spreads the rumors about he is fit and I don't have uterus so he is looking girl for remarriage. I am accepting his violence silently only to keep my parents status in society”.

Family Relationship

Most of the informants who were 1st wife reported that a family member hardly support them for further treatment and emotional support even their husband had infertility problems. In laws always expect more household chores with them. But informants, who were 2nd wife, received sound support from husband, other family members and relatives. All were suggested them to go for treatment, against for remarriage. They did not talk about children in front of them as far as possible.

“My in laws tortured me saying we need grandchildren, “give us soon, Alaxini, you make my son childless, Bahila, go away from my son’s life, due to your weakness, my son losses his status in society’ said Mrs C. Few of them experienced its meaningless and worthless without husband’s affection though good support from in-laws. Most of the informants expressed that “they can read the unwelcoming expression in other’s eyes and face for them”. All of the informants happily expressed that “we are allowed in our in laws house for every rituals and religious ceremonies. No one discriminate us from participating in any works like prayer, worshiping, preparing offering.....”

Self-Esteem

All the informants worried about insecurity of future life and feeling of misfortune that god had punished them by not gifting happiness of motherhood. Some participants believed if they had at least one child, their husband

loves them; marital conflicts and disharmony would not come in their marital life any more. Some felt, they had misfortune so that they had married with as a second wife and always-perceiving pressure of inferior in front of others.

Gender Differences

Expressions from individual interviews, key informants and FGDs, women and men played a different role in society. Women were more suffer compared to men even they had fertility capacity. It was because patriarchal society and influenced of Hinduism. Family accused woman as Bahila, Aputri, and barrier bridging family generation because of their husband had weaknesses. Most of the men allowed remarry if their wife had infertility problem. Women always become at risk of getting step. Woman is considered the shoes of man. Wife has no option to remarry in a case when her husband is infertile.

In some cases, husband alone went to seek for treatment. If his weakness was detected he kept secret to himself and expressed everything was good about him. Most of the family, parent decided when their children marry, with or without their interest; in practice always boys are not satisfied with the choice of parents. It is the wife, who has to suffer with the anger and humiliation of her husband. If she does not get pregnant with in three to four years, other family members and neighbors also turn violate to her. Usually economic dependency of women on their husbands makes their life more difficult. She is overloaded with household chores, accused and scolded often, threaten to leave house, faces many physical, emotional, verbal and mental tortures. Even they stay at house bearing all these traumas up to death because of cultural norms, maintaining parental status in society.

Discussion

Most of the informants represented from Brahmin and believed in Hinduism. In this study the representation of Brahmin are higher than others, which might be attributed to a higher local population of Brahmin in allocated study area. Regarding the occupation, most of all informants involve in farming, this might be due to much of rural women in Nepal have farming occupation and involve in domestic activities. Because of low educational status and cultural influence they are less access to receive opportunity and resources and their lives is economically dependent with husband. The range of married year was various started from 6-25 years. Increasing duration of marriage, couple would have less hope for baby. Two informants were 2nd wife of their husband so that husband and family members more supported them rather who were 1st wife. Infertile women, who were 1st wife, always threaten to 2nd marriage and divorce; even one participant had had step. Similar findings reported by Sami and Allis¹⁶ that respondents had been threatened for divorce (20%) and husband's remarry (38%).

The most common terms used for infertile women: "Bahila", "Banjhi" and "Aputri", for infertile men: "Aputro" and "Namarda" are based on their perception of infertility, which followed by socio-cultural and traditional context. Present study highlighted that perceived causes if infertility are uterine infection, no menstruation, menstrual problems, fallopian tube blocked and hormonal disturbances aggravate female infertility. Study findings from Bardiya district¹⁷ were also corresponded to this study finding.

In this study, four informants realized that "weak sperm" of their husband prevented them from becoming mother. They reported that any defect in sperm that cause male as

infertile. Previous studies also found that causes of men infertility are defect in sperm and impotence. Previous study¹⁸ noted azoospermia (54%) and low sperm count (21%). Two participants mentioned their barren or no motherhood was due to their husband's defect on impotence. Berg¹⁹ also reported in the study that (63%) of males had experienced impotence.

It is evident from the study that people's health seeking behavior corresponds to their socio-economic status and support from family background. All the women in this study used different sources of traditional treatments first then consulted to modern medicine. Similar results were found by⁵ that faith and traditional healers were the first treatment choice among illiterate women in Kuwait. In this study, traditional healers and astrologers are advised them instructions to get children such as doing fasting prayer, Saptaha Puran, sacrifice animals and birds, using armlets, visiting temples etc. Lidia¹⁷ claimed the similar outcomes from western part of Nepal. Similar practice had reported in Nigeria²⁰.

Commonly in this locality, most of infertile couples prefer to go hospital (gynecologists) after getting some traditional treatments. Different types of modern treatments used by infertile women to solve their fertility problems^{6, 21}. Likewise, in present study found all the informants were treated infertility with some kinds of treatment therapies like medicines, IUI, either single or both partners. They preferred to visit to hospital or private clinics rather primary health care center to identify problems and to confirm who had it. Ombelet² also stated that infertile couples always trying to receive some kinds of modern treatment from hospitals or clinics to give a birth of child.

Only two informants visited together to seek treatment. It is evident that women seek

treatment more than the men. In practice, usually women are seeking care alone and first if she does not conceive within 2-3 years of marital period because they feel socially insecure and in order to make her social position secure and maintain respective status within family and prove her fertility although 40% of infertility problems are associated with male infertility factors^{22,23}.

The findings of present study revealed a great value of children in study area. Infertile women experience more negative consequences of childlessness. Community values children, as insurance of their socio-economic secure and parenthood is culturally mandatory. Qualities of couples' marital life are depended on their parenthood. Though, infertility is reproductive health problems. Some informants experienced physical violence by their husband and in laws like slapped, kicking, punching beating and hair pulled. The women who were the family member of deep-rooted conservative family, they experienced any kind of physical violence from their husband or in laws. Lidia¹⁷ demonstrated that in community, patriarchal behavior was still present, at first, husband started to discuss about baby and he blamed wife for this reason and often he teat her after drinking alcohol.

All of the study participants perceived and experienced of emotional distress, frustration and mental torture being a barren women; anxiety and feeling of poor, pity, aimless and no more positive reflection to life. Similar findings expressed that females perceived it as more stress and generally seem to be more affected in terms of negative life consequences^{24, 25}. From the study of relation between anxiety, depression and duration of infertility, 40.8% women had depression, 86.8% experienced anxiety, which was progress severe form that had infertility for 7-9years onwards⁶. Findings show that due to

patriarchal system pressurizes women to produce a child, if not she will suffer in the hierarchical system of female family members. In Japan²⁶ infertility perceived emotional stress is high (38.6%) compare with pregnant control group women (16.0%). Due to fertility problems, most of the study participants reported that dissatisfaction, disharmony and frustration in their marital and sexual life. Hirsh and Hirsh²⁷ found that infertile couples experienced significantly less sexual satisfaction than the couples in control groups. From FGDs, participants mentioned that getting satisfaction in sexual life is a main key to lock the husband –wife in happy marital relationship is being parented soon. Being motherhood means her permanent position in her husband's life and house or to assure the no remarry by her husband anymore. Women are responsible for the bridge of generation if it breaks due to infertility; everybody has complaint against her and she is vulnerable for exploitation. Childlessness means also fear of isolation and property as insecure life in old age²⁸.

Participants from FGDs reported that in this locality, if husband and family members abused infertile women in terms of severe physical, mental and property etc, the LNGOs and mother groups are thought to be protective. They act as a mediator and create the situation that women either overcome from this violence or get property from her husband side and live independently. Hirsch and Hirsch²⁷ explored that social support; counseling and adoption measures have positive impact to deal with the stress of infertility. Implementation of preventive measures and social support are significant to relief infertility related stress⁶.

Gender based biased are practiced in response to infertility, but the ways and magnitude of suffering are different. In the patriarchal line, men have power over the family's economy

and decision-making; so, women cannot receive good treatment as well. Men believed that they have fertility capacity. Study participants noted that, now a days, usually couple visits to hospital and find out who has fertility problems and they get treatment according to available health services based on their economic status. Serour²⁹ found that only 51-63% of the couples could afford to pay for ARTs due to expensive and difficult in many parts of the developing world.

Conclusion

In the contemporary society, infertile women are still victimized from all spare of their personal and social life although infertility is a biomedical cause. Childlessness has a profound physical, psychosocial, economical and marital impact on infertile women. They are entitled as “Bahila” & “Aputri”. Economic hardship and less supportive family made them to seek traditional healer for first treatment approach for infertility than modern medicine. Adaptive behaviors comprise sharing with friends, sisters and accepting the reality of infertility problems and economic circumstances. Usually society believes that childless means they have nobody who will support them in their old age, who will perform their funeral and look after their property. Women’ status and support from husband and in laws depend up on who has the infertility problems. Concept of remarry is gradually reducing among young generation due to education, high empower of women and support from various governmental or non-governmental organizations. Only the Educational up liftmen, women empowerment and positive changing attitude in social stigma related with infertility can make the situation better for the people concerned.

References

1. Program on Maternal and Child Health and Family Planning Division of Family Health, World Health Organization. Geneva. Infertility: A tabulation of a

2. **Ombelet W, Cooke I, Dyer S, Devroey P, Devroey P.** Infertility & medical services in developing countries. *Hum Reprod Update*, 2008; Nov-Dec; 14(6): 605-21.
3. **Inhorn MC, Buss K.** Ethnography, epidemiology and infertility in Egypt. *Social science and medicine*, 1994; 39[(5)]:671-686.
4. **Papreen N et al.** Living with infertility: Experiences among Urban Slum Population in Bangladesh. *Reproductive Health Matters*, 2005;8[no. 15, May]:,33-43.
5. **Fido A.** Emotional distress in infertile women in Kuwait. *Int J Fertil Womens Med*. 2004; Jan-Feb; 49(1); 24-8.
6. **Ramezandaden F et al.** A survey of relationship between anxiety, depression and duration of infertility. *BMC Women Health*, 2004; Nov6; 4 (1): 9.
7. **Schmidt L.** Social & psychological consequences of infertility and assisted reproduction-What are the research priorities? *Hum Fertil (Camb)*, 2009; Mar; 12(1): 14-20.
8. **Malmani A, Malpani A.** How to have a Baby: Overcoming Infertility, 2008. www.drmlpani.com/book/chapter38.html. Retrieved on 16th June 2010.
9. His Majesty’s the government national planning commission central bureau of statistics Kathmandu, Nepal in figures 2001.
10. Nepal Human Development Report 2004: Empowerment and Poverty Reduction. United Nations Development Programme. <http://www.undp.org.np> Retrieved on 17th June 2010.
11. **USAID,** New ERA, Ministry Of Health and Population (2007).Nepal Demographic and Health Survey (2006). Kathmandu: The Author.
12. **UNFPA.** Institute of Medicine, TU. Status of Reproductive health Morbidities in Nepal, 2006. UNFPA, Kathmandu Nepal.
13. **Tuladhar H.** An overview of Reproductive Health of Women in Bajhang District. *Nepal Med Coll J*, 2005, Dec; 7(2): 107-11.
14. **Dubey P.** Infertility is no ground for divorce, rules Nepalese Supreme Court, Kathmandu (Asia News), 31 Mar 2006; 23:04 Nepal.
15. **Miles MB, Huberman M.** Qualitative Data Analysis: A Sourcebook of New Methods. 2. Beverly Hills, CA: Sage Publications; 1994.
16. **Sami N, Ali TS.** Psychosocial consequences of secondary infertility in Karachi, *J Pak Med Assoc*.2006, Jan; 56(1): 19-22.

17. **Lidia B.** Community perceptions of infertility in terms of interpretation, causes, health-seeking behaviour & social consequences in Bardiya District, Nepal. Unpublished master's thesis, 2005.
18. **Tao Chunfang, Xiao Yang.** Research on women's Reproductive Health in China, 1995; New World Press.
19. **Berg BJ, Wilson JF.** Psychological Functioning Across Stages of Treatment for Infertile Couples. *Journal of sex and marital therapy.*1999; 18, 273-284.
20. **Pearce T.** She will not be listened to in public: perceptions among the Yoruba of infertility and childlessness in women. *Reproductive Health Matters*1999; 7: 69 – 79.
21. **Inhorn, MC.** Global infertility & the globalization of new reproductive technologies: illustrations from Egypt. *Soc. Sci Med.*2003; 56(9): 1837-51.
22. **Inhorn MC.** Middle Eastern masculinities in the age of new reproductive technologies: male infertility and stigma in Egypt and Lebanon. *Med Anthropol Q.*, 2004; jun; 18 (20): 162-82. Comment in: *J Urol.*2005 Oct; 174 (4 pt 1): 1368-9.
23. **Kobeissi L, Inhorn MC.** Health issues in the Arab American community. Male infertility in Lebanon: a case-controlled study. *Ethn Dis.*, summer, 2007; 17 (2 suppl 3): s3-33-s3-38.
24. **Greil A L, Mc Quillan J.** Help-seeking patterns among U.S. women. *Journal of Reproductive and Infant Psychology*, 2004; 22, 305–319
25. **Robinson GE, Steward DE.** The psychological Impact of Infertility and New Reproductive Technologies. *Harvard Review of psychiatry*,1996; 4, 168 – 172. Sahlgrenska University Hospital. (translated from the Swedish sentence: www.Cirka 10%av alla par har problem med ofrivillig barnloshet . Retrieved on 2ndAug. 2010.
26. **Matsubayashi H, Hosaka T, Izumis, Suzuki T, Makino.** Emotional distress of infertile women in Japan. *Human Reprod.* 2001 May; 16 (5): 966-9.
27. **Hirsch AM, Hirsch SM.** Long-term psychosocial effects of infertility. *J Obstet Gynecol Neonatal Nurs*, 1995; Jul-Aug, 24 (6): 517-22.
28. **Savelsberg PF.** Plundered kitchens, Empty wombs. *Threatened Reproduction and Identity in the Cameroon Grassfields.* The University Michigan press, 1999; 99-135.
29. **Serour GI, Ghar EIM, Mansour RT.** Infertility: a health problem in the Muslim world, *Popul sci.* Jan; 1991; 10: 41-58.

Correspondence Address: Bishnu Bista (Thapa) Department of Nursing, Nobel Medical College, Biratnagar.

FACTORS AFFECTING HEALTH SEEKING BEHAVIOR OF SENIOR CITIZENS OF DHARAN

Dewa Adhikari, Dagendra Rijal

Abstract

Objectives

To determine the health status and the factors affecting health seeking behavior of the senior citizens aged 60 years and above.

Materials and methods

A descriptive cross-sectional study based on household survey was adapted. The sample consisted 400 senior citizens resident of Dharan. Simple random sampling technique was employed to select the study subject. Individuals were interviewed through self-developed semi-structured pre-tested questionnaires. Descriptive and inferential statistics (chi-square test) were used.

Results

Among 400 respondents, the most frequently reported illness were hypertension(29.3%), diabetes mellitus(8.3%), arthritis/joint pain(24.8%), eye problems(19.0%), hearing problems(3.3%), oral health problems(17.5%), digestive system problems(17.8%), respiratory problems(11.0%), heart disease(3.8%), renal problem(5.3%), skin diseases(7.5%), tuberculosis(3.0%), liver disease(3.0%), mental illness(5.75%), fracture(1.0%), Gynecological problems(7.3%) and male genital (6.3%) problems were also noted. Faith healers were the first treatment choice (97.2%) irrespective of age, gender or ethnicity. After that they visited BPKIHS (36.3%), private practitioner(26.3%), self treatment (11.3%) and self drug-use(6.8%). Half of the respondents utilized formal health institutions only in major chronic conditions. Poverty emerged as a major determinant of health seeking behavior and treatment was considered waste of money (indirect effect 64%) and lack of money (35.5%) followed by poor attitude of health worker(41%)

Conclusion

The use of faith healer as first treatment provider, self-treatment, drug over counter shop were indicative factors of the inefficient utilization of health facilities in meeting the health needs of the senior citizens, were ranked the major determinants of factors affecting health seeking behavior of the senior citizens.

Key Words: *senior citizens, BPKIHS*

Introduction

Aging is a natural process. With reduced ability to generate resources, the elderly lack basic needs that affect their health status and health seeking behavior. Attribution of ill health to ageing, low economic status and

negative attitude of health workers towards the care of the elderly are some of the factors associated with delay in seeking health care.

There has been a global rise in the population of elderly over past 20 years. The developed

countries are now having 16-20% of their population above the age of 65 years. The most rapid increase is expected between the years 2010 and 2030, when the 'baby boom' generation reaches age 65. By 2030, there would be about 70 million elderly; they would represent 20% of the population. In Nepal 6.5% are elderly of the total population, increasing faster than population growth rate. In Sunsari District 35079 are elderly People or 5.6 % of the total population. The total population of Dharan is 95,332 and 5.7% of the population are above 60 years of age.

Health status of older people possesses unique challenges because of the multiple dimensions that influence with passing the age. Old age is not a disease in itself, but it becomes a problem when the obvious physical mental changes brought by the advancing age and make them unable to do their own basic things.⁸ Prevalence of disease rises with the lengthening of the life span and increasing availability of high technical medical care. Older adults have at least one chronic condition and many have multiple conditions. The most frequently occurring conditions from 2000 to 2001 period were hypertension (49.2%), arthritis (36.1%), heart disease (31.1%), cancer (20%), sinusitis (15.1%), and diabetes.⁹

WHO defines *Health* as a state of complete physical, mental and social as well as spiritual well being not merely the absence of disease and infirmity.¹ Oxford Learner's dictionary defines *Seeking* means having, doing, looking etc. and *Behaviour* means habit, performance, culturally and socially motivated activities. Health Seeking Behaviour is a usual habit of the people of a community that is resulted by the interaction and balance between health needs, health resources, and socio-economic, cultural as well as political and national / international contextual factors. Strategic policy formation in all health care systems should be based on information relating to health promoting and

should be based on information relating to health promoting and seeking behaviour and the factors affecting these behaviours. The factors affecting the health seeking behaviours are seen in various contexts: physical, socio-economic, cultural and political. Therefore, the utilization of a health care system, public or private, formal or non-formal, may depend on socio-demographic factors, social structures, level of education, cultural beliefs and practices, gender discrimination, status of women, economic and political systems environmental conditions, and the disease pattern and health care system itself. The aim of this study was to study the factors affecting health seeking behavior of the senior citizens.

Methods

This was a descriptive cross-sectional study design based on house hold survey of Dharan municipality, ward No. 3,4,7,8,9,11,13,15,16 and 18. Study population was Senior citizen of 60 years and above residing in Dharan Municipality. Both male and female senior citizens were interviewed. Senior citizens who did not agree for the interview were excluded from the study. Sample was 400 individuals (10% of the elderly) which targets at least 20% of the population having health seeking behaviour among senior citizens of Dharan Municipality, considering 20% of permissible error.

From 19 wards of Dharan Municipality, 10 wards were selected through simple random sampling lottery method (non- replacement). As the population in 10 wards of Dharan are heterogeneously distributed a total number of 2489 old aged person were proportionately allocated to each ward. The number of sample (400) from each ward was calculated by.

$$n_h = \frac{n}{N} N_h, \text{ here } h = \text{selected 10 wards and } n = \text{require sample size (400)}$$

N = total population of 60+ age (2489) of the selected ten wards, N_h = 60+ population of hth ward

First house was selected by the pen rotating tip direction way with simple random sampling. The old age persons were interviewed till the number of samples been collected. If the selected first house did not belong to any member of the geriatric age, this house was excluded and again next selection was made. Data was obtained by face to face interview technique using semi- structured questionnaire. Health problem was found out as reported by the subject or respondent.

The collected data were edited and value of every variable was coded by manually before computer entry. Data were entered in Microsoft Excel and then analyzed by means of statistical package for social sciences (SPSS) 11.5 version for window. Findings were presented with suitable charts, graphs and frequency tables. The Chi-square test was used to identify the association of health seeking behaviour and various factors.

ETHICAL CONSIDERATION

This study was conducted after the approval of concerned authority from college of Nursing BPKIHS Dharan and from the authority of Dharan municipality. The data was collected after obtaining an informed consent and without any compulsion. A high degree of confidentiality of the personal data was maintained.

RESULTS

A total number of 400 senior citizens participated in this survey. Out of which 201 (50.3%) were males and 199(49.8%) were females. The age of subjects was categorized in to six groups as: 60-64(28male +45, female=73), 65-69(55 male+62 female=117), 70-74(45 male+46 female), 75-79(21male +45 female=66), and 80-84(16male +9female=25) and above 85(12male +16 female=28). Age differences range from 60 to

99, mean age was 70.65 and the standard deviation was ± 7.353 .

Table 1: Prevalence of reported health problems of the respondents for last one year

Characteristics	Categories	Frequency	Percent age %
Health problem	Hypertension	117	29.3
	Diabetes Mellitus	33	8.3
	Arthritis/Joint pain	99	24.8
	Eye Problems	76	19.0
	Hearing Problems	13	3.3
	Oral health Problems	70	17.5
	GIT Problems	71	17.8
	Respiratory Problems	44	11.0
	Heart Disease	15	3.8
	Renal problem	21	5.3
	Skin Disease	30	7.5
	Tuberculosis(TB)	12	3.0
	Liver Disease	12	3.0
	Mental Illness	23	5.27
	Fracture	4	1.0
Fever/ fatigue	29	7.3	
Genital diseases	25	6.3	

* The percentage was not equal to 100 because of multiple responses Table 1, shows the distribution of respondents by illness for last one year. The frequently reported illnesses were hypertension in 117 (29.3%), diabetes mellitus in 33(8.3%), arthritis/joint pain 99(24.8%), eye problems in76(19.0%), hearing problems in13 (3.3%), oral- dental health problems in 70(17.5%), GIT problems in 71(9.7%), respiratory problems in 44(11.0%), heart disease in 15(3.8%), renal

problem 21(5.3%), skin disease in 30(7.5%), tuberculosis in 12(3.0%), liver disease in 12 (3.0%), mental illness in 23(5.27%), fracture in 4(1.0%), Fever/ fatigue in 29 (7.3%) and genital problems/diseases in 25 (6.3%).

Health seeking behaviour of the respondents

Table 2: Types of first approach of seeking health for the reported illness and faith of the respondents on traditional healer

Characteristics	Categories	Frequency (n= 400)	Percentage (%)
Faith on	Dhami/ Jhakri	101	25.3
	Pandit/ Lama/Guvaju	47	11.8
	Astrologer	64	16.0
	Mata/ Budhi baju	33	8.3
	Pitri/Kulpo oja	115	28.8
	Pray about it at church/masjid	29	7.3
	None	11	2.8

Table 2: shows most of the respondents 97.2% were used to seek help for their health problems first time from different categories of faith healer. Dhami/ Jhakri (25.3%), Pandit/ Lama/Guvaju (11.8%), Astrologer (16.0%), Mata/ Budhi baju (8.3%), Pitri/Kulpooja (28.8%) and Pray about it at church/masjid (7.3%).

Table no 3: Distribution of health care utilization for reported illness among the senior citizens.

Characteristics	Categories	Frequency	Percentage %
Health seeking behaviour	Self treatment	45	11.3
	Private	105	26.3

practitioner/ nursing home		
Drug over counter	84	21
BPKIHS	145	36.3
HP/SHP/GO N hospital/welfare	13	3.2%
Alternative medicine (Baidya)	8	2.0

Table 3: The pattern of health seeking habits was evaluated using numerical codes. The subjects opting for: self treatment during illness was 45(11.3%), visit to a private practitioner/ nursing home was 105(26.3%), used of drug over counter from nearest pharmacy 84(21%), visited to BPKIHS Hospital was 145(36.3%), visited to health post/ subhealth post/ Government hospital/welfare was 13(3.2%), visited to alternative medicine was 8(2%).

Fig. 1: Percentage distribution of factors hindering for utilization of the health care facilities

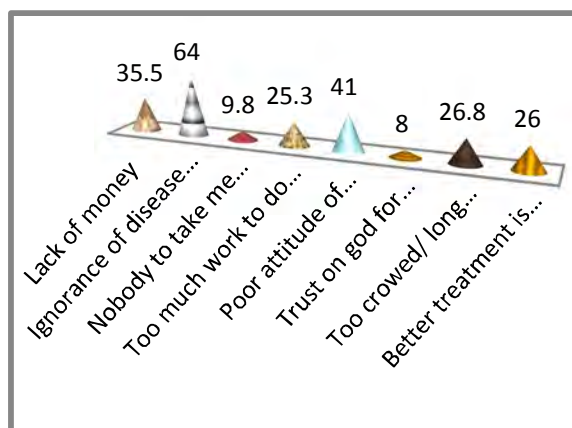


Fig. 1: shows reasons for not seeking the health care facility were 142(35.5%) respondents denied for the health care due to poverty and lack of money, ignorance due to old age were 256 (64.0%), 164(41%)

complained about the poor attitude of health care workers towards their health needs and treatment, 101(25.3%) complained the facility is too far/ too much work to do at home , 107(26.8%) were too crowd and avoided due to lengthy process to get treated and 104(26%), said that other centers had better treatment facility. Nobody to take me to hospital 39(9.8) and trust on god for healing were 32 (8%).

DISCUSSION

Research finding constituted with multidimensional ethnic castes. More than half of the respondents were 202(51%), disadvantaged Janajati followed by others were (49%). cast/ Ethnicity was significantly associated ($p=0.002$) health service utilization. Factors affecting health seeking behaviour was significant associated with decision making by self (72.5%) of the respondents were sought their health problems with formal health facilities ($p<0.03$). Study findings also stressed the importance of economical barriers to health care seeking behaviour. Other sources of income and socio-economical status of the family income of the respondents were depicted to have significant association ($p<0.001$) with the health service utilization.

Factors affecting health seeking behaviour was significant associated with decision making by self (72.5%) of the respondents were sought their health problems with formal health facilities ($p<0.03$).

Study findings also stressed the importance of economical barriers to health care seeking behaviour. Other sources of income and socio-economical status of the family income of the respondents were depicted to have significant association ($p<0.001$) with the health service utilization.

This study showed a significant association ($p<0.001$) between disease condition or severity of illness and utilization of the health service. Reason for not seeking the health care facility: the respondents were deprived of the health care due to lack of money (35.3%), and ignorance due to old age (64.0%).

Health Needs Assessment and Determents of Health seeking behavior among 756 elderly Nigerians states poverty emerged as a major (50.3%) determinant of health care seeking behaviour followed by nature of illness (28.5%).

The number of diseases were significantly associated ($p<0.035$) with health seeking behavior with utilization of health services.

Among the 295 respondents 64% had no problem to afford and 106 could not afford for the treatment. Among the respondents who could not afford for the treatment 36% took loans to get treated from BPKIHS and private practitioners, ask the social support, requested for free health services and reaming, opted for community welfare schemes for the senior citizens($p<0.05$). The evaluation of the sources of information between the availability of the health services and treatment seeking habit showed significant association ($p<0.001$). This study found significant association ($p<0.001$) between health seeking behaviour and respondents perception regarding reason for choice of health service for seeking help as 96% visited formal health institution for better treatment/ specialty service. The respondent's knowledge regarding available health facilities is not adequate for utilization of health facilities. Which was significantly associated ($p<0.001$) between utilization and availability of the health facilities.

CONCLUSION

Findings of this study showed that the factors affecting health seeking behaviour were

significantly associated with type of response of family members,, source of income and economical status of the family, decision makers, severity of illness, cost of treatment, source of information, availability of health facilities, types of health facilities, distance of nearest health facility, ignorance of disease due to old age (deeply rooted cultural belief e.g. old body ill health, stage of setting sun, lack of knowledge regarding the self care etc), poverty, poor attitudes of health worker, lengthy treatment process, trust on God for healing if ill, living alone and lack of someone to take them to hospitals and feelings of better treatment available elsewhere rather than formal health institutions.

References

1. Park K. Park's Textbook of Preventive and Social Medicine. 20th ed. M/s Banarsidas Bhanot, Prem Nagar, Jabalpur, India; 2009. p. 412 - 14.
2. Joice M. Black. Jane Hokanson Hawks, Annabelle M. Keene. Medical Surgical Nursing clinical Management for positive Outcomes. 6th ed. Harcourt, New Delhi, India; 2002. p.45 -47.
3. Status Report on Elderly People (60+) in Nepal on Health, Nutrition and Social Status Focusing on Research Needs. Government of Nepal Ministry of Health and Population Ramshahpath, Kathmandu, Nepal; 2010
4. Waweru LM., Kabiru EW., MBITHI JN., and Some ES. Health status and health seeking Behaviour of the Elderly Persons in Dagoretti Division, Nairobi. East African Medical Journal 2003; 80: 62-7
5. Munshi Y I, Iqbal M , Rafique H & Ahmad Z. Geriatric Morbidity Pattern and Depression in Relation to Family Support in Aged Population of Kashmir Valley . *The Internet Journal of Geriatrics and Gerontology* 2008; 4 (1) this page was generated on Sat, 21 Aug 10 00:15:21 -0500.
6. Age care statistics. Available from: <http://www.helpageindia.com>; 2007.
7. Village development committee, Profile of Nepal. Intensive study and research center; 2008.
8. Gautom PC. Introducing geriatric medicine to Nepal , An outline of a training programme and a model for the delivery of service. Kathmandu University Medical Journal 2008; 6(1):135-140.
9. Stanhope M, Lancaster J. Public Health Nursing. Population centered Health care in the community.6th ed. Mosby Elsevier; 2008. P. 665 - 672.
10. Katung PY. Socio-economic factors responsible for poor utilization of PHC services in rural community in Nigeria *Niger J Med* 2001; 10:28–29.
11. Stephenson R, Hennink M. Barriers to family planning service use among the urban poor in Pakistan. *Asia Pac Popul J* 2004; 19: 5–26.
12. World Bank. *Towards a health sector strategy*. Washington DC: Health, Nutrition and Population Unit, South Asia Region; 1997.
13. Dixit H. The quest for Health, Educational Enterprises Kathmandu Nepal; 1999.
14. WHO Scientific Group. The uses of Epidemiology in the study of the elderly, WHO technical report series 706, Geneva: WHO 1984.
15. Acharya P. Senior Citizens and the Elderly Homes. A Survey from Kathmandu, Dhaulagiri Journal of Sociology and Anthropology 2008; 2: 212 - 24.
16. Upadhaya MP, koirala S, kannan AT, Jha N. Sunsary health interview survey. B.p. Koirala institute of health sciences dharan, Nepal; 1994.
17. Cotter, Valerie T, Strumpf, Neville E. *Advanced Practice Nursing with Older Adults: Clinical Guidelines*. McGraw-Hill Medical. ISBN 0071341579; (2001)
18. Nyamongo IK. Health careswitching behavior of malaria patients in a Kenyan rural community. *Soc Sci Med* 2002; 54:377–386.
19. Delgado E, Sorenson SC, Van der Stuyft P. Health seeking behaviour and self assessment for common childhood symptoms in rural Guatemala. *A Soc Belg Med Trop* 1994; 74:161–168.
20. Nakagawa YM Ozasa K, Yamadu N, Shimouchi A. Gender difference in delays to diagnosis and health care seeking behavior in a rural area of Nepal. *Int J Tuberc Lung Dis* 2001; 5: 24–31.
21. Yip WC, Wang H, Liu Y. Determinants of choice of medical provider: a case study in rural China. *Health Policy Plan* 1998; 13: 311–322.
22. Geissler PW Nokes K, Prince RJ., Achieng R, Odhiambo.j.Aagaard-Hansen and J.H ouma. Children and medicines: self treatment of common illnesses among Luo schoolchildren in western Kenya. *Soc Sci Med* 2000; 50 : 1771–1783.
23. Nakagawa YM Ozasa K, Yamadu N, Shimouchi A. Gender difference in delays to diagnosis and health care seeking behavior in a rural area of Nepal. *Int J Tuberc Lung Dis* 2001; 5: 24–31.
24. Alix-Dancer P. Access to health care in developing countries. In: *Developing countries, society and technology*. Stockholm: Royal Institute of Technology (KTH); 2003.
25. Rani M, Bonu S. Rural Indian women's care

- seeking behavior and choice of provider for gynecological symptoms. *Stud Fam Plannin* 2003; 34 :173–185.
26. Ahmed SM, Adams AM, Chowdhury M, Bhuiya A. Gender, socioeconomic development and health seeking behavior in Bangladesh. *Soc Sci Med* 2000; 51:361–371.
 27. Mumtaz Z, Salway S, Waseem M, Umer N. Gender-based barriers to Primary health care provision in Pakistan: the experience of female providers. *Health Policy Plan* 2003; 18: 261–269.
 28. World Health Organization. World Health report 2000. *Health systems: improving performance*. Geneva; 2000.
 29. Navaneetham K, Dharmalingam A. Utilization of maternal health care services in Southern India. *Soc Sci Med* 2002; 55: 1849–1869.
 30. Uchudi JM. Covariates of child mortality in Malawi: does the health seeking behavior of the mother matter? *J Biosoc Sci* 2001; 33: 33–54.

Correspondence Address: *Dewa Adhikari* , Nursing Director, Nobel Medical College, Nepal.

IRIDOCORNEAL ENDOTHELIAL SYNDROME

Rakshya Panta Sitoula

Introduction:

The iridocorneal endothelial (ICE) syndrome is characterized by abnormalities of the corneal endothelium, iris, and anterior segment leading to secondary angle closure glaucoma. ICE syndrome is usually unilateral, nonhereditary and most common in white women in the third to fifth decades.

Three histological variants are Chandler syndrome, progressive (essential) iris atrophy, and Cogan-Reese (iris-nevus) syndrome¹. Dysfunctional endothelial cells migrate over the trabecular meshwork and anterior portion of the iris, resulting in peripheral anterior synechiae, ectropion uvea, corectopia, and iris hole formation².

Thirty nine years female was referred with the diagnosis of Glaucoma due to the elevated IOP. She gave a history of pressure pain on and off in right eye and blurred vision.

She had no other significant past history or family history. On examination her VA was 20/20 OU. She had normal iris contour, deep AC with IOP of 24, 8 mm in OD and OS respectively. On gonioscopy (Figure 1) there were areas of pigmentation extending from 11:30 to 2 and 7 to 10 o'clock and PAS formation nasally and temporally in the right eye. Gonioscopy on the left eye was normal. Vertical cup disc ratio was 0.8 with inferior thinning OD and normal in OS. VF OD showed paracentral arcuate scotoma and was WNL in OS.



Fig 1

She was started on Lumigan with the differential diagnosis of Ring melanoma, Trabecular neavus, ICE syndrome and Secondary glaucoma. Specular microscopy (Figure2) OD revealed polymegathism, polymorphism and cell density of 1500/mm² and was normal in OS.

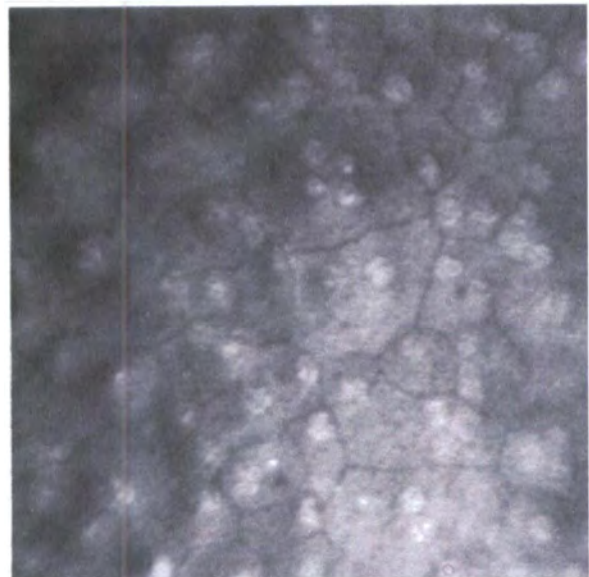


Fig 2

Despite treating her with timolol, dorzolamide, latanoprost and brimonidine her IOP was constantly high hence was planned for Trabeculectomy with MMC. She underwent Trabeculectomy with Mitomycin C (0.4mg/mL) OD. She underwent multiple TCNR (transconjunctival needle revision) after the surgery for the elevated IOP. Barvealt tube was implanted, for uncontrolled IOP and progressive worsening of visual fields. Since the tube surgery IOP has been under control and she is following up in the office every 3 months.

Initially when the patient presented to us she had no other features suggestive of ICE syndrome only sign evident was trabecular hyperpigmentation on gonioscopy. At presentation, significant trabecular hyperpigmentation and PAS formation with elevated IOP favoured the diagnosis of iris melanocytosis, ring melanoma or trabecular

nevus rather than ICE syndrome. Hammered silver appearance of the posterior corneal surface was not evident in our case in early stage of the disease³. This is an unusual case of ICE syndrome with trabecular As ICE syndrome can present.

With a wide spectrum of signs, clinicians should be vigilant and carefully look for signs of ICE syndrome.

References:

1. **Shields MB:** Progressive essential iris atrophy, Chandler's syndrome, and the iris nevus (Cogan Reese) syndrome: a spectrum of disease, *Surv Ophthalmol* 23:3, 1979
2. **D.G. Campbell, M.B. Shields, T.R. Smith** The corneal endothelium and the spectrum of essential iris atrophy *Am J Ophthalmol*, 86 (1978), pp. 317–324
3. **Wilson MC, Shields MB:** A comparison of the clinical variations of the iridocorneal endothelial syndrome, *Arch Ophthalmol* 107:1465, 1989

Corresponding Address: Dr. Rakshya Pant Sitoula, Biratnagar Eye Hospital, Atithi marg, Rani 17, E-mail: rakshyasitoula@gmail.com