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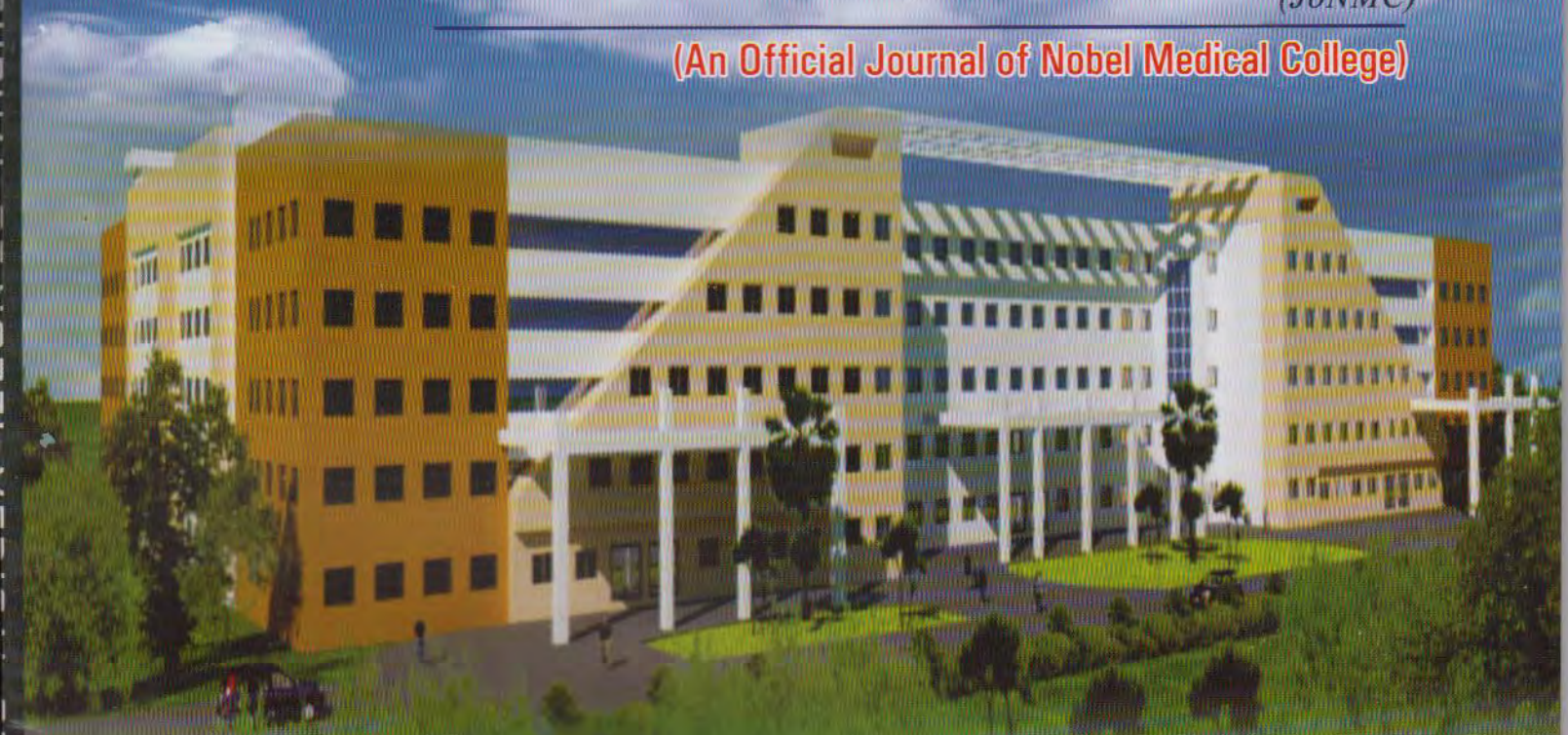

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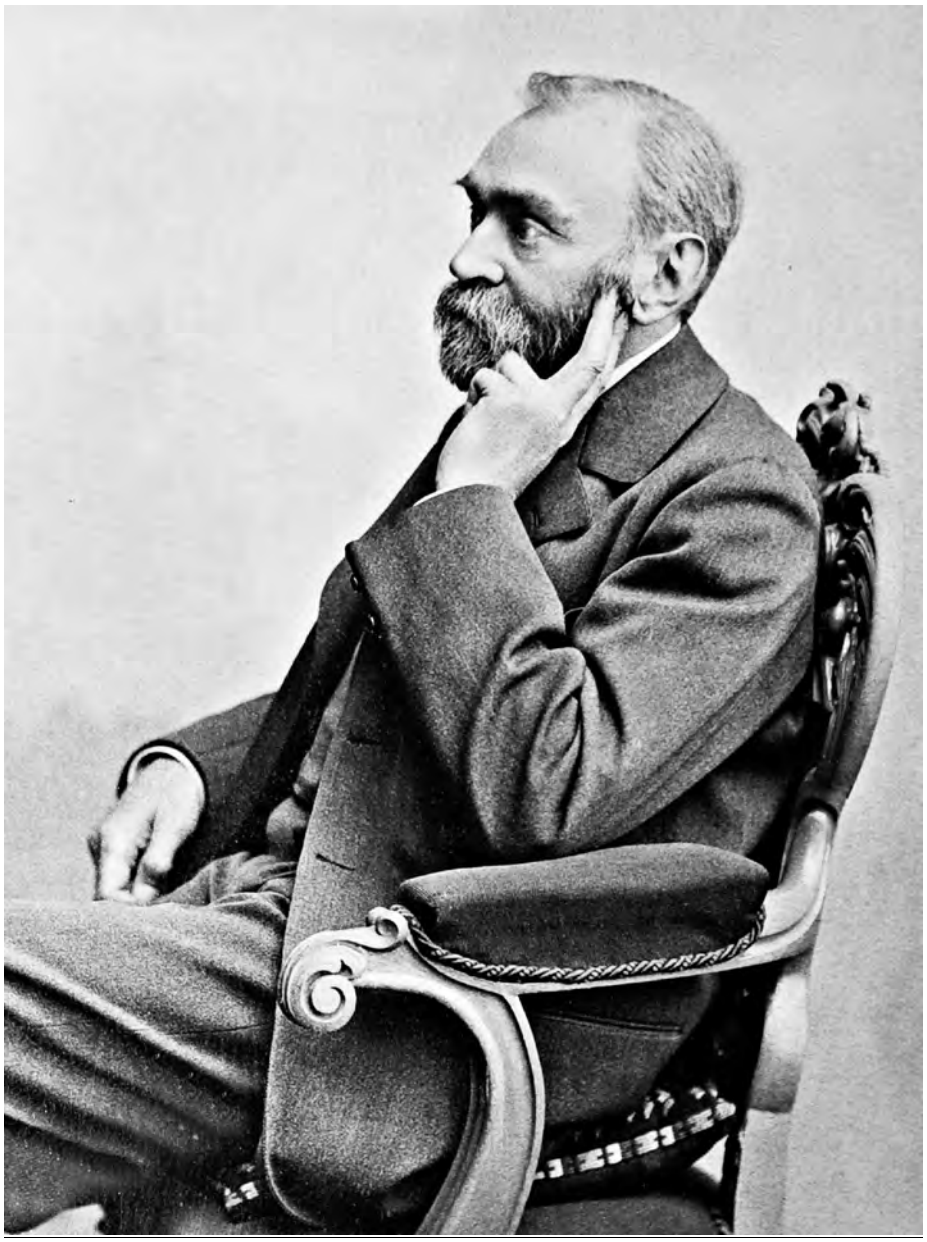

ALFRED BERNHARD NOBEL

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

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Editorial

Molecular Aspects of Human Body's Intelligently Designed Complex Living System

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There are certain aspects of natural world so intricate and fit for purpose that they can't be taken as evolved but must have been created by an intelligent designer. The term intelligent design (ID) has now been accepted as a theory for deciding that a living body can't have arisen by chance but designed and created by some antity. To know whether a system of a living body is of intelligent design or not, evidences related to the concerned system are to be collected and see if they can really be evidences of a planned, genuine design or can lead to a conclusion that blind, random chances be remained as the organizing principle of life. [intelligent design. org].

Human body is comprised of an amalgamation of different systems together making a complex organism that exhibit symmetry and order. Some of these systems have now been established as showing evidence of intelligent design thereby opposing the earlier evolution theory of life proposed by Charles Darwin.

Theist scholar Dr Brad Harrub [1] discussed the complex function of human brain and its relationship with the nervous system in his article: "The Human nervous system: Evidence of intelligent design [part I]". After thorough discussion on the mechanism of action of neurotransmitters, their synthesis, storage etc, it was found to be too complex to have happened by mere accidents. He considered this system as evidence of intelligent design. Dr Brad's next target was on the Human circulatory system. After discussion on how the heart and vessels came to so well laid out within the body, protection of the heart by a bony cage, it's management for a continuous beating etc, a conclusion was brought for considering this system also as evidence of intelligent design.

Another amazing function of Human is the act of conception. Professor Keith Moore [2] examined the complexities of conception in great detail on how the chromosomes from both the ovum and the cell fuse together to form a brand-new cell then divide and grow. The symmetry of Human body from conception to birth is overwhelming and it seems illogical to assert that random occurrence is responsible. Many more works on human systems are in the pipe line for exposure. Thus, in due course of time, every system in our body may be listed as evidences of intelligent design supporting the theory of creation.

A finely regulated molecular transformation in our body as evidence of intelligent design (a topic open for comments). Everyone of us living on this earth do admit that the greatest of all the creations is man himself and we all have come to know that the activity and status of a living body is depicted by finely regulated system of molecular transformation. Joseph Paturi [3] in his article: "The human body- God's masterpiece" suggested of having a chemical plant far more intricate than any plant man has ever built. This plant changes the food we eat into living tissues, causes the growth of flesh, blood, bones and teeth. It

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repairs the body when parts are damaged by accident or disease. Power for work and play also derived from the food we eat.

Selecting bimolecular transformation as a device for maintaining a life activity is itself an intelligent decision; because, every step of the transformation can be traced and identified creating rooms for correction if alteration arises. (Medical Science).

Out of the many systems operating in our body if we pick up the GI system as the beginning, we will find it's molecular status (in the process of digestion and absorption) as mostly of transformation of macromolecular structure like proteins, fats, polysaccharides, nuceic acid etc to the smallest possible molecular structures like amino acids, fatty acids, glucose, purines, pyrimidines etc using a set of enzymes already kept ready for secretions at the allocated locations such as salivary gland, stomach, pancreas and succus entericus. The secretion of these enzymes will again be regulated by a set of biomolecules known as secretagogues like acetyl choline, catacholimines, histamine, gastrin, cholecystikinin, secretin, serotonin etc.

Some of the additional arrangements we see in the GI system during this biotransformation process for safe and smooth utilization of the ingested food are as listed below. 1. Production and storage of HCL for the denaturation of proteins ingested for easier digestion, killing of microorganism if any and activation of pepsinogen to pepsin.2. secretion of proteolytic enzymes in it's zymogen form (inactive) just to protect the GI lining from the possible attack of those enzymes when active. 3. Production of bile acids and salts to facilitate the digestion and absorption of lipids. All these arrangements can be made possible by formation of all these required molecules in the body itself by enzymatic reaction only. All the required enzymes are to be synthesized through series of molecular transformation starting from DNA, the wonder molecule.

DNA in living creatures shows strong evidence of the creator. It carries information that can't have occurred by natural forces but came from an intelligent being.

Dear colleagues, these points related to GI system mentioned above, can be taken as evidences we have collected from this small area of Human system. Kindly, go a little deeper to get more evidences if you want and bring it to a conclusion with your own justification that, this much complexity we are finding in this system can be of a natural selection or, would you like to categories it as of intelligent design??

Let us try to know the complexity of all the systems in our body to get more evidences for discussion on this line.

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Original Article

Study of Renal Profile In Diabetic Patient at Nobel Medical College Teaching Hospital, Biratnagar

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Received: 7th August, 2016; Revised after peer-review: 12th September,2016; Accepted: 5th October, 2016

Abstract

Background

Diabetes Mellitus (DM) is one of the most common health problem characterizd by hyperglycemia. Type II Diabetes Mellitus is the most common one. Diabetic nephropathy is the most common clinical condition arises with in these patients which progressively leads to impairment in kidney's function. Measurement of microalbumin in urine is the earliest dectactable stage of diabetic kidney disease.

Material and Methods

The total of 200 diabetic patients (112 males and 88 females) were enrolled and biochemical estimations including blood glucose level, serum creatinine, blood urea, urine albumin was conducted.

Results

Prevalance of microalbuminuria was 26 % in type II diabetic patients.Renal functions parameters like blood urea and serum ceratinine were higher in patients with positive microalbuminuria.60 % of diabetic patients are normoalbuminrics and rests 14% are proteinurics.

Conclusion

Various factors like increasing age, duration of diabetics, blood sugar level,blood urea, serum creatinine are the causes for microalbuminuria and proteinuria. Therefore, to rule out the early screening of diabetic kidney disease, DM patients should get routinely checked up with blood sugar level as well as renal profile test like serum creatinine, blood urea and albumin level in urine.

Key Words: *Diabities Mellitus, Diabetic Nephropathy, Microalbuminuria, proteinuria.*

Introduction

Diabetes mellitus (DM) is a clinical syndrome characterized by hyperglycemia due to insufficient or inefficient production of insulin in the body [1]. It is the most common health problem in this century. Around 6-7% (millions of people) of world population is affected by Diabetes Mellitus and the number will rise to 370 million people by 2030 [2,3]. Type II Diabetes Mellitus is most common which constitute about 85-95% of all Diabetes Mellitus cases. India will be listed top 10 amongst world's population suffering from Diabetes Mellitus [4].

Diabetes is also one of the major cause of kidney failure [5]. Diabetic Nephropathy is the most common clinical condition in diabetic patients which progressively impaired renal functions during their life time [6,7]. Microalbuminuria (albumin in urine) predicts the risk of Diabetes Mellitus [8]. Microalbumineria is the excretion of 30-300 mg of albumin in urine per day, which

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represents the intermediatory stages between normal albumin excretion (2.5-30 mg/day) and macroalbuminuria (> 300 mg/day), even though the small increase in albumin excretion predicts the impairment in renal function in diabetic patients [9]. If urinary albumin excretion crosses 300 mg/day it is then to be considered as overt proteinuria and it is hall mark of diabetic nephropathy. Clinically Proteinuria is the phase after microalbuminuria [10].

Materials and Methods

The study was carried out in clinical laboratory services of Nobel Medical College Teaching Hospital, Biratnagar, Nepal for a period of one year ie from April 2013 to March 2014. The Study includes both the indoor and outdoor patients mostly from the eastern part of Nepal.

Total of 200 patients of Diabetes Mellitus diagnosed were included in the study. Blood samples as well as urine samples of these patients for followng parameters were studied.

To make study Convinent only few parameters of Renal function test were studied. Those were Microalbuminuria, urea and creatinine with related to Blood sugar level (BSL).

Microalbuminuria was estimated using immunmetric assay method using random spot urine sample, blood sugar levels by GOD-POD (glucose oxidase - peroxidase) end point essay method, blood urea by urease method, serum creatinine by Jaffe's method (alkaline picrate method).

The normal range for urine albumin is < 30 µg/ml (up to 30 mg/24 hrs). For blood sugar level (BSL), fasting is 60-110mg/dl, post parandial (PP) is < 140 mg/dl. similarly, the normal range for blood urea and serum creatinine is 20-30 mg/dl, 0.9-1.4 mg/dl respectively.

Statical Analysis

Mean value and standard deviation were calculated using student's two tailed t-test. Data was analysed using a student T-test. Results are considered statically significant if $p \leq 0.05$.

Results

A total of 200 cases of diabetic's patients' blood and urine sample were studied. Out of total 112 were males and 88 females. The male to female ratio is 1.27:1. The age of the patients ranged from 40 years to 70 years. The mean age of patients was 55 years.

Table 1:Blood sugar level (BSL) status in Type II DM

Parameters (mg/dl)	Male(n=112)	Female(n=88)	Total(n=200)
BSL fasting	170 ± 48	150 ± 50	160 ± 49
BSL post parandial (PP)	55 ± 67	39 ± 85	247 ± 76

Data are Mean ± SD

Table 2: Renal Function Test (RFT) in Type II DM

Parameters (mg/dl)	Male(n=112)	Female(n=88)	Total(n=200)
Blood Urea	39 ± 28	32 ± 26	36 ± 27
Serum Creatinine	2.0 ± 2.45	1.28 ± 1.19	1.64 ± 2.22

Data are Mean ± SD

Table-3:
Biochemical parameters of normoalbuminuric and microalbuminuric.

Biochemical Parameters(mg/dl)	Urine Albumin <30 µg/ml (normoalbuminuria) (n=120)	Urine Albumin ≥30 & <300 µg/ml (microalbuminuria) (n=52)
BSL Fasting	145± 27	160 ± 20*
BSL PP	220 ± 71	265 ± 78
Blood Urea	24 ± 7	40 ± 30*
Serum Creatinine	0.97 ± 0.16	1.90 ± 2.28*

Data are Mean ± SD
Significantly different from normoalbuminurics ***p<0.05**

Table-4: Duration of diabetics and protein excretion in Type 2 DM

Duration (years)	Mean Age	<30 µg/ml	>30&<300 µg/ml	proteinuria	Total
0-5 Years	53	86	32	15	133
5-10 years	52	22	11	7	40
10-15 Years	58	12	9	6	27

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Discussion

Our study suggest that the value of fasting and postparandial blood sugar lavel is higher in case of male than female, which indicates the poor glycemic control in male,suggesting the future risk of diabetic nephropathy. Controlled BSL decreases the risk of nephropathy and of other diabetic complications. Our studied is based on kidney's function parameters like microalbuminuria,serum creatinine and blood urea. Serum creatinine as well as blood urea were higher in males and in patients with positive Microalbuminuria (table-2 and 3). This increase in blood urea and creatinine can be compare and correlated with poor BSL in both these groups. In our study some of the diabetic nephropathy patient and some of the diabetic pateints who were already on dialysis, the serum creatinine level and blood urea level of these pateients were very high and that was the one of the significant reason for high standard deviation of the values of blood urea and serum creatinine. High BSL damages nephrons - tiny filtering units of kidney so that kidneys are unable to maintain the fluid and electrolyte balances of body. As we know that Creatinine is filtered by glomerulus therefore, serum creatinine level indirect measures glomerulus filtration rate (GFR). As GFR diminishes, there is markddly increase in plasma concentrations of serum creatinine and urea. Furthermore, this increase in the level of urea and creatinine indicates the progression towards diabetic nephropathy and estimation of serum creatinine has greater prognostic ability compared with that of urea for predicting the adverse outcomes [11]. Therefore, incresad serum urea and creatinine levels in diabetics clearly indicate prolonged hyperglycaemia which irreversiblly causes damage to nephrons [12]. Elevated serum creatinine and decreased GFR has become firmly entrenched as fairly reliable indicators of kidney dysfunction [13]. The prevalence of Microalbuminuria according to our study was 26%. Increasing age, duration of diabetes, BSL, blood urea and serum creatinine are the most important risk factors for the development of Microalbuminuria [14]. Most of the diabetic patients are not microalbuminurics(60% normoalbuminurics) and show normal renal profile test like urea and creatinine . As the mean sugar level increases normoalbuminurics proceeds to microalbuminurics and shows elevated urea and creatinine level (Table-3). 14% of the DM patients are proteinurics.(Table-4). So in one of the study that is conducted in Nepal it has been seen that diabetic nephropathy is one of the major cause that develop chronic renal failure later on [15].

Conclusion

Renal function of diabetics has been investigated through this study. Most of the diabetics were having kidney dysfunction due to their elevated blood urea and creatinine. Our study has found higher prevalence of microalbuminuria in type-2 diabetes mellitus, which predicts the risk for the later development of diabetic nephropathy. Incidence of microalbuminuria increases with age as well as with increased duration of diabetes mellitus.Our study suggest that diabetic patient should routinely get cheked up with renal profile parameters like microalbuminuria ,urea and creatinine in order to minimise the risk from DM.

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Original Article

Gullain-Barre' Syndrome during pregnancy: Fetomaternal outcomes

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Abstract

Background

Gullain-Barre' Syndrome (GBS) is not uncommon during pregnancy in our setting. There are no studies regarding the clinical profile and fetomaternal outcomes of GBS during pregnancy in Nepal. Therefore, this study was conducted to analyse clinical profile and fetomaternal outcome of pregnant women with GBS.

Material & Methods

Prospective descriptive analysis was carried out of all female's cases of >16 years women of GBS with pregnancy who were admitted in the hospital between 1st August 2015 and 30th July 2016. A structured questionnaire was designed which included demographic, obstetric, clinical, neonatal and neurological parameters.

Results

During the period of 1 year, 11 cases were analysed with median age of 23.7 years. Disease was common in primi and in 3rd trimester. Three patients (27.2%)needed mechanical ventilation and one of them (9%) died due to ventilator associated pneumonia. There was only one (9%) neonatal death.

Conclusion

Gullain-Barre' Syndrome is not uncommon in our setting. Early diagnosis and proper management of pregnant women with GBS may result in good fetomaternal outcome.

Key Words: *Gullain-Barre' Syndrome, Pregnancy, Fetomaternal outcomes*

Introduction

Guillain-Barré syndrome (GBS) is an acute demyelinating peripheral polyneuropathy and is the most common cause of acute generalised paralysis [1]. It typically begins with fine distal paraesthesia followed by leg weakness. The weakness then extends proximally and is commonly accompanied by pain in the large muscles of the legs or back. In severe cases the disease then affects respiration, eye movements, swallowing or autonomic function. Few patients develop respiratory failure and need mechanical ventilation [2]. It has an annual incidence of 0.75–2% per 100 000 but is possibly less common in pregnancy [3]. The risk for GBS increases after delivery [4]. It is known to worsen during the post-partum period due to a rapid increase in delayed-type of hypersensitivity during this period. Relapse during successive pregnancies has been reported [5]. Only 50 cases of GBS during pregnancy have been reported because of the dramatic nature of the disease onset, diagnostic confusion and its resemblance to features of normal pregnancy [6]. The disease can occur in all trimesters. The

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occurrence of the disease in the third trimester presents a high maternal risk because of respiratory complications and risk of premature delivery [7]. To the best of our knowledge, there are no studies related to fetomaternal outcomes in pregnancy with Gullain-Barre' Syndrome (GBS) in Nepal. Therefore, we aimed to profile the fetomaternal outcomes clinically.

Materials and Methods

We did a prospective descriptive analysis of all female's cases of >16 years women of GBS with pregnancy that were admitted in the hospital between 1st August 2015 and 30th July 2016. Informed Consent was taken before enrollment in the study. Diagnosis of GBS was made by working clinician using standard clinical criteria [8]. A structured questionnaire was designed which included demographic ,obstetric ,clinical ,neonatal and neurological, parameters. All the women were followed till discharge. All obstetrics parameters were studied in detail including fetal outcome. Ethical clearance was obtained before doing the study. The collected data was entered in Microsoft Excel 2013 and converted into Statistical Software Package for Social Sciences (SPSS 11.5 version) for statistical analysis for descriptive statistics.

Results

During the period of the 1 year total number of deliveries were 5,864. Among them 16 pregnant women were diagnosed with GBS with the prevalence of 2.7\1000 deliveries . Five among them, presented postpartum GBS and therefore only 11 antenatal cases were analysed. The median age of patients were 23.7 years (range 16-43). The mean duration of symptoms on admission was 5.17 days (range 2-19 days). The mean duration of hospital stay was 9.3 days (range 7-23 days). Sensory symptoms were present in 7(65%) whereas only one patients had sensory findings on examination. No patients had extraocular muscle involvement. Only one (9%) had bilateral facial nerve paralysis. None of the women had oropharyngeal weakness. No any patient presented in first trimester, two patients (18.2%) were in second trimester, 9 (81.8%) were in third trimester. Five (45.5%) had onset of weakness in the lower limbs and rest had simultaneous weakness in both upper and lower limbs. CSF analysis of all patients showed albuminocytological dissociation universally. None of patients received intravenous immunoglobulin (IVIG) infusions because except one all patients improved with supportive care and 3 patients improved with mechanical ventilation and ICU care.Since we have no facilities for plasmapheresis, none of our patients were treated with plasmapheresis. Patient characteristics and fetomaternal outcomes are displayed in following Tables.

Table 1 Patient Characteristics

Characteristics	**N = 11 (%)**
Age in years	23.7(16-43)
Primiparous	7 (63.63%)
Multiparous	4 (36.36%)
POG at the time of presentation	
Ist trimester	0
2nd trimester	2 (18.18%)
3rd trimester	9 (81.8%)
H\0 preceding infection	7 (63.63%)
Mode of delivery	
Vaginal delivery	5 (45.45%)
Instrumental delivery	3 (27.27%)
Cesarean section	3 (27.27%)
Duration of hospital stay	9.3 days (Range 7-23 Days)
Mortality	1 (9%)

Most of the cases of GBS were Primi in 3rd trimester. Only slight above a quarter of the patients needed cesarean section. One patient died during mechanical ventilation due to ventilator associated pneumonia(VAP).

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Table 2 Clinical Presentation

Characteristics	N = 11(%)
Paraplegia	5 (45.45%)
Quadriplegia	6 (54.54%)
Absent deep tendon reflexes	9 (81.8%)
Bilateral plantar flexor response	11 (100%)
Sensory symptoms	7 (63.6%)
Bilateral facial palsy	1 (9%)

Many of the patients were quadriplegic with sensory symptoms.

Table 3 Treatment given

Characteristics	N = 11(%)
Supportive care	8 (72.7%)
IVIG infusion	None
Plasmapheresis	None
Mechanical ventilation	3 (27.2%)
Duration of symptoms on onset in days	4.12 (3-9)
Length of hospital stay in days	6 (4-20)

Most of the patients improved with supportive care and three patients needed mechanical ventilation.

Table 4 Pregnancy complications

Characteristics	N = 11(%)
Premature rupture of membrane	2 (18.1%)
Preterm labour	1 (9%)
Emergency caesarean section	1 (9%)
Elective cesarean section	2 (18.1%)
Vaginal delivery	8 (72.7%)
Postpartum hemorrhage	1 (9%)
Instrumental delivery	3 (27.3%)

Most patients had normal vaginal deliveries. Three patient needed vacuum application for prolonged second stage with poor maternal effort.

Table 5 Neonatal outcomes

Characteristics	N = 11(%)
Meconium staining liquor	3 (27.3%)
APGAR score < 7 at 5 minute	2 (18.1%)
IUGR	1 (9%)
NICU care	6 (54.5%)
Neonatal death	1 (9%)

Despite various neonatal problems, only one neonatal death occurred who died of extreme prematurity with neonatal sepsis.

Discussion

The GBS is an inflammatory demyelinating disease of the peripheral nerves. This syndrome rarely complicates pregnancy and there are only few cases which have been reported in the literature. The present study represents a selected group of patients with GBS in pregnancy in our setting. It not uncommon to see GBS with pregnancy in our hospital. Although this study is limited to one year hospital based data but still it reflects the experience and mode of the patient management in a referral center of eastern Nepal.

Alter M et al [9] found that there is age dependent increment in incidence of GBS. However, our study did not find such an association. The disease was more common in young women because the child birth rate is higher in these group of women. Another reason may be due to an increased risk of infection by cytomegalovirus and campylobacter jejuni in young age group.

Sharma et al [10] found that two third of pregnant women were primipara and 15(81.8%) women presented in third trimester whereas 1 patient in first trimester and 7 (14.89%) in second trimester. Our observations were similar to these finding as 63.6% women were primipara and most women were presented in third trimester. GBS can occur in any trimester of pregnancy and postpartum period but particularly common in third trimester [11].

Despite neurological deficits in GBS, impairment of uterine contraction is not there and vaginal delivery can be completely possible. Therefore, maternal GBS is not an indication of cesarean section and operative delivery should be reserved for obstetric indications only [12]. In our study 8(72.7%) patient underwent

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vaginal delivery,3(27.3%) of them requiring vacuum extraction for prolonged second stage with poor maternal effort.

Reports before the mid 1980 suggests that GBS in pregnancy carries a high maternal morbidity and mortality [12]. It has been reported that as many as 34.5% of women suffering from GBS during pregnancy required ventilatory support whereas our finding is more or less similar to above study 3(27.3%) and one of them died. One study [13] reported that up to 20% of patients are disabled after one year and a maternal mortality of 7%. Whereas the mortality in non-pregnant women is < 5%. Our finding corroborates with this finding with maternal mortality of 1(9%).

The management of GBS in pregnancy is similar to that in non-pregnant which includes general supportive care, intravenous immunoglobulin, plasmapheresis and mechanical ventilation whenever required. In the 30 cases reported after 1985, ventillatory support was required in 10 women (33.3%). The duration of ventillatory support reported in six cases ranged between 2 and 126 days. The availability of IVIG or plasmapheresis does not seem to be associated with a lower requirement in ventillatory support. This may be partly due to the long delay from onset of neurological symptoms to initiation of treatment. Active treatment such as plasmaphresis is more useful when given within seven days of onset of disease [14].

Our all patients were monitored in ICU. Attention was given for early identification and treatment of infective complication like urinary tract infection and chest infection. Among 11, four of them received low molecular weight heparin for prevention of deep vein thrombosis as they were having gross lower limb swelling as well. Supportive care was the mainstay of treatment in most of our patients. Supportive care included maintaining fluid and electrolyte balance, nutritional support, management of airway and respiratory infection, pain management along with physiotherapy and early mobilization. Fear of paralysis or loss of sensation was most common anxiety factors which was dealt with sympathetic counselling and psychological support.

While analyzing neonatal outcome, GBS in pregnancy usually do not affect the baby even when they delivered from mother who were quadriplegic or even being ventilated. There are many reports of deliveries of healthy babies to women with GBS at various stages of pregnancy [15]. In our study, though 6(54.5%) required neonatal intensive care for respiratory distress, 5(45.5%) of them survived but one baby died because of extreme prematurity at 30 weeks' period of gestation. In this case, we had to terminate pregnancy for worsening maternal condition. Mother improved third day onward of termination of pregnancy.

Conclusion: To conclude, although rare GBS does occur in pregnancy but can be managed successfully with good maternal and neonatal outcome by early diagnosis and prompt intensive care is provided at an early stage.

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Original Article

A descriptive cross-sectional study of helicobacter pylori infection in non-ulcer dyspepsia patients in a tertiary care teaching hospital In the Eastern part of Nepal

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Abstract:

Background

In Gastroenterology practice, worldwide, the most common cause of dyspepsia is functional. Functional or non-ulcer dyspepsia is established by gastroduodenoscopy which rules out structural disorders in dyspeptic patients. *Helicobacter pylori*, a gram-negative bacterium in gastric mucosa is associated with non-ulcer dyspepsia, chronic gastritis, gastriculcer and cancer. Worldwide prevalence of *Helicobacter pylori* infection is higher but its association with non-ulcer dyspepsia is less clear.

Material and Methods

The aim of this study was to see the prevalence of *H. pylori* infection in non-ulcer dyspepsia. A cross-sectional study of 340 patients presented at Nobel Teaching Hospital in one year with dyspeptic symptoms underwent clerking, physical examination, gastroduodenoscopy and RUT. Symptomatic patients without any structural lesions were designated as functional dyspepsia. RUT when turned red indicated positive for *H. pylori* infection.

Result

Out of 340 patients, 180 (52.9%) were female and 160(47.1%) were male. Mean age of male and female patients was 35.88 ± 11.8 and 38.11 ± 11.7 respectively. Amongst all participants 150 (44.11%) were housewives and 69(20.3%) were students. Endoscopic findings showed gastritis 205(60.29%) and duodenitis 15(4.42%). RUT was found positive in 62% of gastritis and 86.7% of duodenitis patients (p value = 0.001).

Conclusion

High prevalence of *H pylori* infection in present study may be one of the causative factors in producing symptomatic non-ulcer dyspepsia. Hence, early detection and complete eradication of *H.pylori* infection is mandatory. It will reduce usage of PPIs and also improve quality of life.

Key words: *Non-ulcer dyspepsia, Rapid Urease Test, Helicobacter pylori, Gastroduodenoscopy.*

Introduction:

Dyspepsia is a highly prevalent health issue ranging from 20%-30% worldwide **[1]** and most commonly encountered in developing nations causing a considerable amount of economic loss and morbidity **[2].** Dyspepsia is defined as chronic or recurring painful, difficult or disturbed digestion, which may be associated with symptoms of nausea, vomiting, heartburn, bloating and

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abdominal discomfort **[3].** Dyspepsia can further be elaborated by the following:

(i) Postprandial fullness (Post-prandial distress syndrome),
(ii) Early satiation (meaning inability to finish a normal sized meal) and
(iii) Epigastric pain or burning sensation (Epigastric pain syndrome) **[4].**

The commonest cause of dyspepsia encountered in primary health sector and gastroenterology department worldwide is functional and is also known as non-ulcer dyspepsia. Interestingly Tally NJ et al recorded only one fourth of such dyspeptic cases who had peptic ulcer diseases. In1999, hedescribeddyspepsiaas a group of heterogeneous disorder that was classified into following categories:

(i) Ulcer-like symptoms with upper abdominal pain,
(ii) Dysmotility-like symptoms with epigastric fullness, early satiety and bloating and
(iii) Unspecified dyspeptic patients with symptoms not fitting with either category **[5].**

Functional dyspepsia, according to ROME III criteria, is defined as one or more symptoms of dyspepsia with no evidence of structural diseases in oesophagus, stomach and duodenum that have been excluded by gastroduodenoscopy**[6].** These criteria should be fulfilled for three months with onset of symptoms and at least six months before the diagnosis has been made. The transmission of *H. pylori* occurs from person to person following an oral-oral or fecal-oral route. This microaerophilic, helical bacteria, probably acquired in childhood, is found to be associated with peptic ulcer diseases causing duodenal ulcer in 80-90% and chronic gastritis in 60-75% **[2].**

According to WHO, chronic *H. pylori* infection is also related to gastric carcinogen and may be associated with gastric adenocarcinoma and MALT (Mucosal Associated Lymphoid Tissue) lymphoma. Though the association between prevalence of *H. pylori* infection and peptic ulcer disease like duodenal ulcer and gastritis is well established but regarding the same in the non-ulcer dyspepsia is less clear.

As the prevalence of *H. pylori* infection is very high in developing nations, the present study in Eastern Nepal was designed to see the association between *H.pylori* infection and non-ulcer dyspepsia. The diagnosis of *H. pylori* infection needed invasive gastroduodenoscopy with gastric mucosal biopsy and RUT.

Material and Methods

This study was conducted only after getting Ethical Committee approval from Institutional Review Committee (IRC), Nobel Medical College, Kathmandu University. Hospital Director and Head of Medicine Department of Nobel Teaching Hospital were also informed about this study.

Patients and their care-givers were explained fully about study design, benefit and risks involved in the procedure and a duly signed written consent was taken from each patient.

It was a descriptive cross-sectional study over a period of one year from April 2014 to March 2015. About 340 patients from various parts of Eastern Nepal attended at Nobel Teaching Hospital Medicine department with various dyspeptic symptoms and without any structural lesion as proved by gastroduodenoscopy had participated in this study.

Inclusion criteria

Patients from various parts of Eastern Nepal of both sexes from15 to 60 years of age, presented with dyspeptic symptoms as defined by Rome III criteria, irrespective of having history of anti-*H.pylori* treatment and PPIs (Proton-pump inhibitors) were included.

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Exclusion criteria

Patients below 15 and above 60 years, residing outside of Eastern Nepal, having varices, ulcer, stricture or growth in the esophagus, stomach and duodenum, non-compliant with written consent and patients with abnormal bleeding and clotting time were excluded.

In the present studyat Nobel Medical College Teaching Hospital, Biratnagar, Olympus CV150 for gastroduodenos copy and biopsy and Rapid Urease Test kit (HP), manufactured by Allied Marketing Company, Kolkata were used. We made a Study Format to collect all demographic data for each patient including identity, hospital and study number, habits, profession, symptoms and endoscopic findings. Each patient with non-ulcer dyspepsia was diagnosed clinically as well as endoscopically.For each patient, one punch biopsy sample was put in thefreeze stored RUT kit that was kept at room temperature for 30 minutes before putting the biopsy material and the test results were recorded within 60 minutes. The red or pink colourchange was recorded as positive and any other colour changes that occurred later than 60 minutes were rejected as negative result.

Statistical analysis was done by recording the data in MS Excel 2007 and converted into SPSS 17(Statistical Presentation Systemic Software). The study description was made by expressing the percentage (%), mean, standard deviation (SD) and Pearson Chi-Square Test were calculated according to the data obtained in this study.

Results

Table 1. Mean age and standard deviation of male and female patients:

Number and Sex of patients	Percentage (%)	Mean age ± standard deviation
Male:160	(47.1%)	35.88 ± 11.80
Female:180	(52.9%)	38.11 ± 11.74
Total:340	(50%)	37.06 ± 11.80

NB: *Percentage in parenthesis*

Out of 340 patients, females were 180(52.9%) and 160(47.1%) were male. The mean age and standard deviation of male and female patients were 35.88 ± 11.80 and 38.11 ± 11.74 respectively.

Table 2. RUT positivity, Demographic, Clinical and Occupational characteristics of participants:

Characteristics	Participants (%)	RUT positivity (%)	p value
Sex:-			0.877
Female	180(52.9)	102(56.7)	
Male	160(47.1)	92(57.5)	
Occupation:-			0.007
Housewives	150(44.11)	88(58.7)	
Students	69(20.30)	28(40.6)	
Businessman	52(15.30)	39(75.0)	
Services	23(6.77)	14(60.9)	
Unemployed	23(6.77)	13(56.9)	
Laborers	09(2.64)	05(55.6)	
Others	12(3.53)	05(41.7)	
Retired	02(0.58)	02(100)	
Alcohol consumers:-			0.547
Yes	67(19.70)	41(60.3)	
No	273(80.30)	153(56.3)	
Smoker:-			0.007
Yes	101(29.30)	65(64.4)	
No	239(70.30)	129(54.0)	
Pain abdomen:-			0.439
Dull	165(48.53)	96(58.2)	
Burning	156(45.88)	89(57.1)	
Pricking	14(4.12)	07(50.0)	
Non-specific	05(1.47)	02(40.0)	
Endoscopic findings:-			0.001
Normal study	120(35.29)	54(45.0)	
Gastritis	205(60.29)	127(62.0)	
Duodenitis	15(4.42)	13(86.7)	

NB: *Percentage in parenthesis*

Amongst the total number of 150(44.11%) participants, housewives (20.30%), students (15.3%), businessmen (6.77%) and service-holders were (6.77%)recorded. Alcoholics and non-alcoholics were 19.7%

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and 80.3% respectively.RUT positivity was documented in 56.7% female and 57.5% male patients.RUT was also found to be positive in 62% gastritis and 86.7% duodenitis cases.

Discussion

H.pylori,a ubiquitous bacterium attached to gastric mucosa is found in more than 50% of adult population worldwide **[5].**In developing parts of the world, 80% of the population may be infected by the age of 20,whereasthe prevalence is 20-50% in industrialized countries. The steady increase in the prevalence of *H.pylori* noted with increasing age is due primarily to a cohort effect, reflecting higher transmission during a period in which the earlier cohorts were children**[7].** The varied prevalence of *H.pylori* infection is dependent on age, sex, race, geography, residence in developing country, domestic crowding, unsanitary living condition, unclean food or water and exposure to gastric contents of an infected individual. Two major predisposing factors among them are poor economic condition and less education. The prevalence of *H.pylori* in American blacks and Hispanics is more as compared to whites because of poor socioeconomic status.

The precise pathophysiology of this disorder is not fully understood but is thought due to a complex interaction of increased visceral afferent sensitivity, delayed gastric emptying, or impaired accommodation to food, or psychological stressors. Although benign, these symptoms may be chronic and difficult to treat.

H. pylori is known to cause chronic gastritis,duodenitis and related disorders like ulcer and cancer by inducing inflammatory response by producing ammonia,proteases,phospholipases and increased gastrin level by G cell stimulation**[8].**

Present study showed predominance of female (52.9%) as compared to male (47.1%) participants having functional dyspepsia but RUT positivitywas noted as 56.7% in female and 57.5% in male indicating not much difference in gender. Among the females, delayed gastric emptying time and proximal gastric motor function abnormality were held responsible in gender related differences in the prevalence of functional dyspepsia in one study done by Sarah N Flier et al in Switzerland. Moreover, she also documented gender differences in psychological realm and dyspeptic women experiencing a lesser sense of well being than their male counterparts **[9].**

This study was conducted in the Eastern part of Nepal to see the prevalence of *H.pylori* infection in the non-ulcer dyspepsia patients. The mean age of male and female patients were **35.88** ± 11.80 and **38.11** ± 11.74 respectively [**Table 1**]. In 2015,a similar study done in India by Harsh V Salankar,Sonali B.Rode et alshowed highest prevalence of *H.pylori*infection was more in 31-40 year-age group with a mean age of**38.53**which was very close to our study result**[10]**.The higher rate of infection tends to occur as age advances in those geographical locationswhere lower socioeconomic status and high density of population are prevalent.

Present study in Eastern Nepal revealed the prevalence of *H. pylori* infection was**57.1**% (194/340) in non-ulcer dyspepsia patients who were positive for RUT. More precisely, we found that RUT positive gastritis cases were **62.0%** and duodenitis 86.7% respectively (p = 0.001). Similar study was done in 2006 by Pande PR, Karki BB, Bhattarai MD et al at Shree Birendra Hospital, Nepal **[11]** and revealed 55**%** of prevalence of *H.pylori* infection in erosive antral gastritiswhich reflected almost similar figure with our study.

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H.pylori infection may not cause structural lesion as evidenced by present study where non-ulcer dyspepsia cases who underwent gastroduodenoscopy, had 35.29% normal endoscopic finding.A study done by Tack J et al in 2006 in industrial country like America where as high as 40% non-ulcer dyspeptic patients had no structural lesion and contrarily, their symptoms were produced by gastroesophageal reflux disease [GERD] **[6].**

In 2011, Blaser M et al had reported in Nature that gastric presence of nonpathogenic strain of *H. pylori* might be beneficial in some cases by normalizing stomach acid secretion and even reducing the prevalence of GERD **[12].**

Almost a comparable study carried out in urban area by Shrestha S, Paoudel P, and Pradhan GB et al in 2012 at Nepal Medical College Teaching Hospital at Kathmandu, showed prevalence of *H. pylori* infection in functional dyspepsia was 50.47%.In that study, 47.6% gastritis and 17.87% cases, normal endoscopic findings were recorded. Moreover,average mean age in that study was 20.12 yearsas compared to the same average mean age of 37.06 years in present study [**13].**

It is an established fact that *H. pylori* infection is acquired in childhood and its prevalence increases in developing nations with advancing age which has been documented in those above mentioned studies.

Recently, another cross-sectional hospital based observational study conducted in two different hospitals at Kathmandu, carried out by Thakur SK and Basnet BK in 2012 **[14]** concluded that prevalence of *H.pylori* infection in non-ulcer dyspeptic patients was 42.6% and interestingly that was more than the ulcerated dyspeptic patientsof 22.6% with $p = 0.007$.Present study showed prevalence of *H.pylori* infection in functional dyspepsia was 57.1%. This wide difference of prevalence of *H.pylori* infection in those above mentioned studies as compared to present study at Nobel Teaching Hospital could be due to variation of average mean age, socioeconomic status and availability of hygienic water.

In present study, 101(29.7%) patients were smokers and 67(19.7%) were alcoholics [**Table 2**].In functional dyspepsia and *H.pylori* infection, there are many risk factors involved such as diet, smoking, spirit, steroid and non-steroidal anti-inflammatory drugs, physical and psychological stress besides age, sex, race, geography and sanitation of water. In our study, among smokers and non-smokers, 64.4% and54.0%were RUT positive respectively. Similarly, in present study, RUT was positive in 60.3%in alcoholics and 56.3% in non-alcoholics. In 2015,ParvezMujawar et al in India have found correlations between smoking and ulcer formation and other risk factors involved in dyspeptic patients and concluded that smoking by itself may not be much of a risk factor unless associated with *H. pylori* infection **[15].**

In present study, there was not much difference of prevalence of *H. pylori*infectionamong smokers and alcoholics as compared to non-smokers and non-alcoholics. Indeed, number of pack-years and quantity or quality of alcohol consumed by each patient was not recorded in this study. Smokers and alcoholics have been found to have ulcers more frequently than teetotalers and smokers. Smoking and spirit appears to decrease healing rates, impair response to therapy, altered gastric emptying and increased risk of *H. pylori* infection as described by SalihBarik et al in Turkish patients in 2007**[16].**

Though gastroduodenoscopy was an invasive procedure but the advantage was that it was easy to perform, comfortable

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and cost-effective as compared to other expensive and time-consuming tests such as **^{14}C** urea breath test, histopathology and culture-sensitivity of *H. pylori* or specialized testing of serum gastrin level and gastric acid analysis. Hence, RUT in dyspeptic patients should be mandatory because *anti-H.pylori* regime will give prompt relief and prevent chronic type B gastritis which may lead to gastric ulcer and cancer.Other advantages of RUT were thatcolour change in RUT kit could be shown to patientsand their care-givers to win their confidence within 60 minutes and it could be performed in all centers with gastroduodenoscopy facility. Moreover, sensitivity and specificity of RUT within 60 minutes were shown to be as high as 89-98% and 89-93% respectively which supplanted other tests for *H.pylori* **[17].**

We encountered few limitations in our study:(i) there was no precise information regarding*anti-H.pylori* medication or PPIs, taken by those patients which might interfere with the RUT results and (ii) we had taken only one biopsy from each patient for RUT for pecuniary reason as compared to multiple biopsies were taken in other study**[14].** Besides those two, non-compliance of many participants in giving written consent for fear of invasive procedure, made the sample size comparatively small in the present study.

Conclusion

Before the discovery of *H. pylori*, the treatment was centered on the dictum by Schwartz of "no acid, no ulcer". Nowadays, although anti-acid treatment is still important but eradication of *H. pylori* is the mainstay of therapy of dyspepsia.

Present study recorded high prevalence of *H.pylori* infection as one of the most important causative factorsin producing symptomatic non-ulcer dyspepsia. Hence, itsearly detection and complete eradicationwill reduce usage of PPIs.Consequently, socioeconomic burden will be relieved and quality of life will be improved. Knowledge of prevalence of *H. pylori* infection in Eastern Nepal in functional dyspepsia would not only accrue cost-effective benefits but also help future researchers to explore means to reduce its prevalence.

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Original Article

Relationship of Torch Profile in First Trimester Spontaneous Miscarriage

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Abstract

Background

TORCH is a group of organisms like Toxoplasma, Rubella, Cytomegalo virus and Herpes simplex virus. These groups of organisms causing infections in pregnant lady leads to various degree of adverse pregnancy outcomes in the form of spontaneous abortion, preterm delivery, intrauterine growth restriction, severe congenital defect with syndromic babies. So, to observe the relationship of TORCH infection in first trimester spontaneous miscarriage in our population and to treat them, this study was performed.

Materials and Methods

A total of 103 patients with spontaneous abortion meeting inclusion criteria were taken in the study. TORCH profile was sent for those patients and observed the sero-prevalance for IgM and IgG. Thereafter organism was identified and the results were interpreted.

Results

Out of total 103 patients enrolled 58.25 % of patients were sero-positive for TORCH complex. IgM or IgG Sero-positive for Toxoplasma, Rubella, Cytomegalo virus and Herpes Simplex virus were 11.65% /17.47% ;7.76% / 43.68%; 19.41% / 41.74% and 31.06% / 54.36% respectively.

Conclusion

In the present study on analyzing the association of TORCH antibodies in women with spontaneous abortion, infection with Herpes simplex virus was most commonly associated.
Key words: *Infection, spontaneous abortion, TORCH*

Introduction

First trimester of the pregnancy is an important period often associated with complications like bleeding per vagina, pain abdomen leading to severe apprehension to mother. These days' majority of the women conceived around their late thirties as they are carrier oriented. As the age advances, the potential for fertility is decreased and pregnancy losses are also increased. [1, 2] There are various factors causing abortion, like genetic factors, uterine malformations, endocrinological dysfunction, immunological dysfunctions, infectious agents, environmental pollutants, psychogenetic factors and endometriosis. These are the most important causes of spontaneous abortion. [3, 4] Maternal infections, especially during the early gestation, can result in fetal loss or malformations, as fetal immune system is unable to resist the infectious organism. Many studies have shown that there is significant association between the pregnancy loss and maternal TORCH infections. [5-7]

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TORCH agents are often responsible for abortion and the rate of spontaneous abortion from fetal infection is in range from 10-15%. Primary infection during pregnancy may cause spontaneous abortion or stillbirth. [8]

Toxoplasma gondi is most widely spread parasite that cause toxoplasmosis and it is spread to those patients who deal with cats and its feces, and in those who eats raw meats. It occurs in pregnancy as an acute illness. Rubella virus invades the placenta and the fetus where as cytomegalo virus (CMV) is one of the major causes of congenital infections to newborn. [9]

Herpes Simplex virus (HSV) infection during pregnancy is associated with increased frequency of spontaneous abortion, still birth and congenital malformations. [10] TORCH infection is usually asymptomatic and chronic but many sensitive and specific tests are available to detect its antibody in serum. In this study, we have observed the association of seropositivity of TORCH complex in first trimester, among spontaneous abortion cases.

Materials and Methods

It is a crosssectional study which was carried out in Department of Obstetrics and Gynecology of Nobel Medical College Teaching Hospital, Biratnagar, Nepal over a period of one year from 1st July 2015 to 30th June 2016. Ethical clearance from institutional ethical review board (IERB) was obtained before conducting the study.

Women with first trimester miscarriage in the form of blighted ovum, missed abortion, incomplete abortion and complete abortion were enrolled. Those patients who were unwilling to participate, women those having bleeding disorder, any chronic medical or surgical illness, uterine malformations, immunological disorder were excluded from the study. Women with molar pregnancy and who had already taken medical or surgical intervention to terminate the pregnancy were also excluded from the study. All the women who fit inclusion criteria were enrolled either from outpatient department or from the emergency of obstetrics and gynecology department. Five milliliter of blood was drawn from the patient and sent for serological examination of TORCH complex. TORCH IgM & IgG were performed by ELISA kit and the test was done as per instruction. Serological reports were retrieved from the patient's bill number and the report recorded in their files. The interpretation of the results was obtained manually and recorded.

Results

During the study period a total of 103 patients with first trimester spontaneous abortion, meeting the inclusion criteria were enrolled. Out of 103 patients 58.25% (60) came out to be TORCH positive either in the form of IgG or IgM and 41.74% (43) came out to be TORCH negative.

Among these four organisms most common was herpes simplex virus infections whose seropositivity in the form of IgM were 31.06% (32) and for IgG were 54.36% (56). IgM seropositivity for CMV, Toxoplasma and Rubella were found to be 19.41% (20), 11.6% (12) and7.76% (8) respectively. IgG seropositivity for CMV, Toxoplasma and Rubella were found to be 41.74% (43), 17.47% (18) and 43.68% (45) respectively.

Both the IgG and IgM negative in Toxoplasma were 32.03% (33) where as both negative in Rubella, CMV, and HSV were 9.70% (10), 9.70% (10), and 1.94% (20) respectively.

Both IgG and IgM were positive in Herpes Simplex virus were 29.12% (30) and for CMV, Rubella and Toxoplasma were 12.62% (13), 2.9% (3) and 2.9% (3) respectively.

The age groups were divided into three sub groups' viz. age less than 20 years, 20-35

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years and more than 35 years. The most common age groups with spontaneous abortion were 20-35 years which was 79.6% (82) patients. Beside this, 13% (14) patients were less than 20 years and 6.7% (7) patients were of more than 35 years.

Minimum age of the individual patient was 18 years where as maximum age was 37 years.

Spontaneous miscarriage was mostly seen in primigravida which was 66% (68) of patients than in multigravida with 33.9% (35) patients. The highest gravida was gravida 11 in our study.

Most of the spontaneous miscarriage patients presented with chief complaints of per vaginal bleeding 79.96% (82) in the form of spotting only, or passage of clots or passage of fleshy mass.

Beside these, 20.38% (21) patients had pain abdomen with per vaginal discharge. Most of the patients presented with missed abortion which was around 44.66% (46). Incomplete abortion was seen in 33% (35) patients and complete abortions in 21.35% (22) of patients.

Discussion

In this study done at Nobel Medical College Teaching Hospital with a total 103 enrolled patients, 58.25% were positive for TORCH infection and 41.74% were negative.

In this study the incidence of first trimester spontaneous abortion in teenagers was 13%. This is similar to other study done by Sebastain D et al [5] in kerela, India which also showed that teenager's miscarriage rate was 14.3%. This is higher to 5.5% miscarriage rate among the teenagers in the other studies done in India by Bhalerao et al. [11] The teenage pregnancy rates reported from various parts of the world ranged from 8 - 14%. [5] The patients with 20-35 years of age were highest in number which was 79.6% of total spontaneous abortion patients. In this study minimum age during presentation was 18 years and maximum age was 37 years. Similar study done by KM Guddy et al [12] in TUTH , Nepal showed that 94.8 % were between 19-35 years of age and only 2% were of age more than 35 years. Another study done in eastern region of Nepal by Pradhan SV [13] also showed that maximum number i.e. 66% of the patient presented with abortion was in between 20-30 years of age and oldest age being 40 years.

In our study, the maximum number of spontaneous miscarriage patients were primigravida which was 66% (68) and 33.9% were multigravida. Maximum gravida was up to 11. Similar study done by KM Guddy [12] also showed the similar results with 68% of spontaneous abortion was in nulliparous patients. Another study done in kerela by Sebastien D et al [5] showed 39.4% were primigravida.

Toxoplasma gondii is an obligate intracellular parasite and infection caused by Toxoplasma gondii is known as Toxoplasmosis. It is asymptomatic and if acquired during pregnancy, especially as a primary infection may cause damage to the fetus. Apart from being transmitted through infected cat's feces, it can also be transmitted through contaminated vegetables, fruits, and milk.

In this study, IgM seroprevalance for Toxplasma was 11.6% which is also similar to 11.6% in a study done by Kaur R et al [14] whereas another study done by Sebastain D [5] showed 50.7%, which is much higher than our study. Similarly, study done by Tiwari S et al [15] in New Delhi showed IgM for Toxoplasma was seen in 9.5% of patients which is also similar to this study.

According to our study, IgG seroprevalance for Toxoplasma was 17.47% which indicates that these percentages of patients were already exposed to Toxoplasma infection and they are already immune to it. Both IgG and IgM negative for Toxoplasma were in 32.03% of

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patients thus susceptibility for toxoplasma infection which is also similar to study done by Sebstain D et al [5] who showed 67.7% had immunity against Toxoplasma and 32.2% were susceptible for Toxoplasma infection. But, Ghazi HO et al [16] reported 35.6% patients with immunity against toxopalsma whereas Ustacelebi S et al [17] reported 47.5% of patients.

In this study, IgM seroprevalance for Rubella infection was 7.76% and its susceptibility to infection was 9.70% whereas 41.74 % were already immune to rubella virus. Similar study done by Sebastain D et al [5] reported that IgM Rubella infection rate was 11.3% and susceptible for this infection was in 9.6%. Infection susceptibility for rubella was almost similar to our study. IgM infection with rubella was 14.2% in a study done by Tiwari S et al [15] which is almost double than the findings of our study, whereas IgM for rubella was 4.66% reported by Surpam RB [7] and 4.5 % by Yasodhara P et al [8] which is lesser than our study. Similar study done by Anju et al [19] reported IgM and IgG for rubella was seen in 35.38% and 60% of patients

Cytomegalo Virus (CMV) is a DNA virus which causes a wide variety of clinical manifestation. It is the most common congenital infection with birth prevalence of about 0.5%. IgM infection with cytomegalo virus was 19.41% whereas 41.74% of patients were already immune to this infection and 9.07% were still susceptible for these infections. Similar Study done by Anju A et al [18] reported similar infection rate with cytomegalo virus with IgM in 19.23% of patients, but IgG was in 78.46% of patients which is quiet higher than our study.

In a study conducted by Pradhan SV [13] in Nepal reported majority of the patient i.e. 72.4% had already immune to cytomegalo virurs with recent infection rate of only 4.5%. In Asia, the reported incidences vary from 0.5% in Japan, and 1.8% in Taiwan, in the presence of a very high rate of preexisting maternal immunity of 90%–100%. [19,20] Another study done by Hani O Ghazi [16] in saudi reported 92.1% pregnant ladies were having IgG positive for cytomegalo virus infection which is very high in comparison to our study.

Though, the HSV IgM and IgG infection is more in our study i.e. 31.06% & 54.36% respectively but only susceptible for this infection was in1.94% of patients. It showed that most of the patients have already been immunized by HSV infection and they remain with latent state. A Study done by Tiwari S et al [15] reported that 35% of patients had IgM seropositive rate for HSV infection. Similarly, Ghazi HO [16] reported that HSV 1 IgG in 90.9% of patients and for HSV 2 was 27.1% of pregnant Saudi women in 2002. Mohammed J et al [21] reported HSV IgM in 73.9% of patients which is much higher infection rate than our study.

Sebastain D et al [5] reported that IgM infection was 59.2% and IgG was 38.7% for HSV, whereas Ustacelebi S [17] in 1986 reported 87.5% of patient's IgG infection for HSV.

Conclusion: As TORCH infection, can cause lot of adverse outcome in pregnancy like spontaneous abortion, preterm delivery, intra uterine growth restriction, congenital anomalies. Herpes virus was detected as one of the most common agent in first trimester spontaneous miscarriage in our eastern part of Nepal. So, TORCH profile can be done in a patients who are planning to conceive. Though TORCH profile is expensive and most of the patients in our set up are poor enough to afford for this infection, still we should send TORCH profile as it is one of the identifiable cause for adverse pregnancy outcome and it can be treated if

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detected early in pregnancy. However, a larger study should be carried out to confirm the finding of the present study.

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Original Article

Prevalence of overweight, obesity and its associated risk factors among school children aged 6- 16 years of Biratnagar

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Abstract

Background

The World Health Organization (WHO) defines obesity as a 'global epidemic. Overweight and obese children are at higher risk for developing long-term chronic diseases like hypertension. With globalization bringing more lifestyle modifications, adolescents are exposed to multiple risk factors including obesity, diet, academic stress, lack of physical work apart from hereditary risk factors. Early diagnosis of obesity and hypertension is an important strategy in its control, effective treatment and prevention of complications. The aim of the study is to assess the prevalence of and the factors associated with childhood overweight/obesity among school children

Material and Methods

It is a school based cross sectional study done in schools of Biratnagar. School going children aged 6 to 16 years from 10 different schools of Biratnagar were taken as study population. Five were private schools and five were government schools. All the school going children aged 6 to 16 years were included in the study. Children with any chronic illness were excluded from the study.

Results

A total of 1900 students were included between age group of 6 to 16 years. The prevalence of overweight, obesity and hypertension were 2.9%, 1.8% and 6.1%.

Conclusion

Overweight, obesity was significantly associated with hypertension. Students studying in private schools and family income > Rs.10,000 were strongly associated with overweight, obesity and hypertension. Family history of hypertension was also associated with overweight/obesity.

Keywords: *overweight, obesity, co-morbidity, hypertension.*

Introduction

According to World Health organization, obesity is defined as being at or above the 95th percentile of body mass index for age and sex and Overweight as being between the 85th and 95th percentiles of body mass index for age and sex.

WHO defines Body mass index(BMI) as being weight in kilogram per height in square metreis recommended for use in children and adolescent [1]. The WHO has categorized obesity as a 'Global Epidemic'.

Traditionally, overweight/obesity used to be considered a problem in developed countries, however this problem is being on rise in developing countries, particularly in urban areas due to change in sedentary lifestyles and food habits [2-3]. Reviewing

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the data , Childhood obesity has increased from 4% to 6% from 1990 to 2010, and is expected more to increase to 9% or approximately 60 million by 2020[4].

At present, precise data on prevalence of childhood obesity, overweight, hypertension in school children in Nepal is lacking although there is data available regarding prevalence of overweight, obesity HTN in adults.

So, this study aims to find out prevalence as well as factors associated with overweight, obesity and hypertension to prevent for the future risk for development of the cardiovascular disease. This study would generate some evidence based recommendation for the preventive of non-communicable diseases like hypertension, overweight and obesity in the future.

Material and Methods:

This study was aschool based cross sectional study among school going children aged 6-16yrs from 10 different school of Biratnagar, 5 were private and rest 5 were public school. All children aged 6-16yrs studying in grade 1-10 were enrolled into the study. Population proportionate simple random sampling technique used based on their roll numbers of the class so that each student has the chance of being included in the study. Age was verified from school records and rounded off to completed years. Height and weight of each child were recorded. Height was measured by using stadiometer with child standing upright barefoot on ground with heels, buttocks touching wall and head in the Frankfurt plane. A calibrated and standardized electronic weighing scale were used to measure weight.BMI was calculated using the formula BMI = weight in kg /(height in metre)^2. A child was classified according to NCHS guidelines as overweight with BMI for age between 85th and 95th percentiles and as obese with BMI for age at or above the 95th percentile. For information to be taken from the parents of the school children, a small questionnaire was handed over to the children, which was subsequently given to their respective parents.

Results:

This study enrolled total of 1900 participants. The mean age in the study was seen to be 11.78 years with standard deviation of 2.89. This study included minimum age of 6 years with maximum age of 16 years. Majorities (66.8%) of the participants were greater than 10 years of age. Of these 1900 participants 51.1% were male followed by 48.9% females. The participants representing private school was slightly high (55.3%) compared to the government school of 44.7%.

It was seen that mean height in this study was 141 cm (SD = 15.87) and mean weight was 35.99 kg (SD = 12.14). BMI was then calculated and classified as per the WHO guidelines. It was seen that 19.9% of the respondents were underweight. 75.3% of the respondents had normal BMI. Overweight and obese represented 2.9% and 1.8% respectively.

It was seen in the study that overweight and obesity was found to be only 2.9% and 1.8% respectively. Although it was in small number this was found to be statistically significantly associated with hypertension ($p = 0.001$)

The study also tried to compare the risk factor for overweight/obesity among the 1900 participants. It was seen that age was not significantly associated with overweight or obesity ($p = 0.363$). Similarly, sex was also not found to be significantly associated with hypertension (0.915). Both males and females represented almost equal proportion in the overweight/obese category. However, participants who were from the private school were found to be more overweight / obese compared to their government school counterparts.

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Table 1: Socio-demographic characteristics of the participants (n = 1900)

Background characteristics	Category	Number	Percentage
Age	≤ 10	631	33.2
	> 10	1269	66.8
Mean age(yrs) ± SD	11.78 ± 2.89		
Gender	Male	971	51.1
	Female	929	48.9
School type	Government	849	44.7
	Private	1051	55.3
Family Income	≥ 10000	939	49.4
	< 10000	961	50.6

Figure 1: BMI of the Respondents (n = 1900)

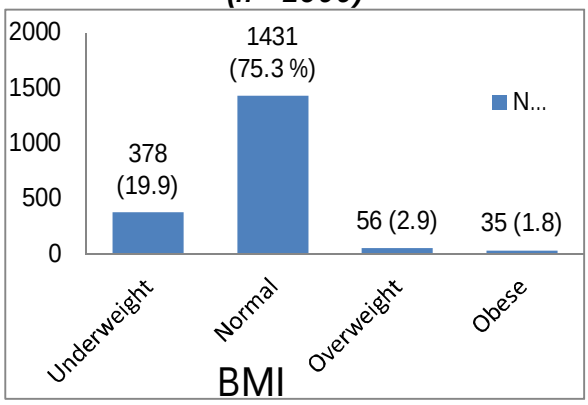

Table 2: BMI classification of the Respondents (n = 1900)

BMI category	Category	Number	Percentage
BMI category	Underweight	378	19.9
	Normal	1431	75.3
	Overweight	56	2.9
	Obese	35	1.8

Table 3 : Association of BMI with hypertension (n = 1900)

Risk factors	Category	Hypertension		p-value
		Normal	Hypertension	
BMI	Underweight	363 (96)	15 (4)	0.001
	Normal	1353 (94.5)	78 (5.5)	
	Overweight	43 (76.8)	10 (28.6)	
	Obesity	25 (71.4)	10 (28.6)	

Discussion

This study was done to find out the prevalence of overweight, obesity and hypertension and its associated risk factors. This study was a cross sectional descriptive study, done in school children of Biratnagar. In this study prevalence of obesity was 1.8%. Similar study done in kaski district of Nepal, found the prevalence of obesity was 2.3% [5]. This result was comparable to our study. In this study prevalence of overweight was 2.9%. In our study, students studying in private school were found to have high prevalence of overweight/obesity/hypertension than those population studying in government school. In this study, students with family income of Rs > 10,000 have higher prevalence of overweight/obesity/ hypertension than those having family income of Rs < 10,000. In this study, family history of hypertension was associated with overweight and obesity. So far there are no published data on pediatric overweight, obesity and hypertension and its associated risk factors in Eastern region of Nepal. So, this study gives information about above co morbidity. Further there is a need of further studies to find out the overall prevalence of overweight, obesity and hypertension in pediatric population in this country.

CONCLUSION

Although overweight/obesity was found to be of lower prevalence in our study yet there was strong association with hypertension, so timely identification or control of overweight/obesity is required for prevention of development of other cardiovascular comorbidities.

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Original Article

Role of fine needle aspiration cytology in Metastatic lymphadenopathy

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Abstract

Background

The most common site for metastases is lymph nodes for various types of cancers. It is a reliable and easy approachable as well as inexpensive method of diagnosis for the patient as well as for the pathologist. So, the recognition and establishing a preliminary diagnosis on patients presenting clinically with lymphadenopathy is of importance and especially categorizing whether it is an inflammatory lesion or metastatic or primary neoplastic lesion itself of the lymphnode.

Material and Methods

A prospective study in 1000 patients was performed of all presenting with cervical lymphadenopathies. This study was performed in the department of pathology, Nobel Medical College and Teaching hospital, Biratnagar, Nepal from the period of January 2013 to January 2016.

Results

Total number of cases included was 1000 of fine needle aspiration cytology in patients presenting with cervical lymphadenopathies. Out of the total 1000 cases 800 cases were benign lesions, 110 were malignant lesions, 70 cases were inflammatory lesions while 20 cases were inconclusive. Out of the 110 malignant cases, most common malignancy was squamous cell carcinoma, adenocarcinoma followed by ductal carcinoma of breast, small cell and non-small cell carcinoma, papillary carcinoma of thyroid and few cases of malignant melanoma and undifferentiated carcinoma.

Keywords: *FNAC, Fine Needle Aspiration cytology, Cervical Lymphadenopathies, Metastatic lesions.*

Introduction

Fine needle aspiration cytology (FNAC) of lymph node is an integral part of the initial diagnosis for the management of patients with lymphadenopathy due to its early availability of results, simplicity and minimal trauma with less complication [1]. FNAC is inexpensive quick and simple method that is used to sample superficial lymphnodes [2]. This procedure is cheap, easily repeatable and well tolerated by the patients and can be performed on outpatient basis [3]. Patients suffering from non-hematological malignancies could initially present as lymphadenopathy which could be the first clinical sign and clue to the clinician. FNAC not only confirms the presence of metastatic disease, but also gives the clue regarding the nature and origin of primary malignancy and is useful for the detection of recurrence and new metastasis [4]. FNAC is most popular diagnostic aid over the world for the patients presenting with

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lymphadenopathies with variable etiology such as bacterial, viral, fungal or protozoal infection as well as in diagnosis of primary lymphoid malignancies and secondary metastatic tumors [5, 6]. Enlarged lymphnode only could be the far most common presentation of metastatic cancer than malignant lymphomas, in older patients above the age of 50 years, which is easily and reliably detected by FNAC. It is very useful when combined with radiological image modalities like USG and more advanced procedures like CT or MRI, for more accurate localization of deep seated lesions [7]. It not only aids in forming a diagnosis of metastatic tumor but also helps in subtyping and its origin [7]. It is compared as a useful tool over more expensive procedures like surgical excision biopsies in developing countries with limited financial and health care resources [8]. It can avoid the need for excisional biopsy because it gives an accurate diagnosis for reactive lymphoid hyperplasia, infectious disease, granulomatous lymphadenitis, and metastatic malignancy [9].

The aim of the current work was to report the cytomorphological features of metastatic lymph node lesions.

Materials and Methods

The present study of each metastatic lymphnode was conducted in the department of pathology, Nobel medical college, Biratnagar, Nepal over a period of January 2013 to January 2016. Different doctors including radiologists, surgeons, ORL and H&N Surgeon and pathologist played a crucial role in this procedure, especially in deep seated lesions. Aspiration was done using a 23-gauge needle. 10 ml syringe was attached and aspiration was carried out. An average of 2 passes and a minimum of 4 slides were made. Material was spread with the help of another slide and fixed in 95% ethyl alcohol for Papanicolaou stain. Slides were stained with both Giemsa and Papanicolaou (PAP) stains and wherever applicable. Smears which yielded adequate cellular material was considered as “satisfactory” and were reported as “positive for metastasis” with further subtyping wherever possible.

Results

Total aspirations of 1000 cases were done in patients presenting with lymphadenopathy. Amongst the total of 1000 cases; 110 cases were of metastatic lesions accounting for 11% of all included FNAC’s of lymphonodes performed in our department. Other lymphode cases were reported as follows: reactive, infective and inconclusive. Regarding the inconclusive cases, the causes were unsatisfactory smears with very scant cellularity, frank bloody aspirate and several patients refused to repeat the FNA procedure and few patients failed to collect the reports.

Regarding the total of 110 cases reported as metastatic carcinoma, squamous cell carcinoma was the commonest comprising (65.45%), followed by adenocarcinoma (20%), ductal carcinoma of breast (3.63), small cell carcinoma (2.73%), non-small carcinoma (1.82%), papillary carcinoma of thyroid (2.73%), malignant melanoma (1.82%) and lastly undifferentiated carcinoma (1.82%). Table no: 1.

Amongst the presented lymphnodes, the most common was located in the anterior and posterior cervical triangles which was total of 55 cases (50%); followed by supraclavicular of 35 cases (31.82%), axillary was of 10 cases (9.09%), intraabdominal 3 cases (2.73%) and finally inguinal lymphnode was 7 cases (6.36%). Table no: 2.

Out of 110 total patient's male patients were 70 (63.63%) and 40 (36.36%) were female patients. Regarding the male to female, it was 1.75:1. Age variation ranged from 22 to 74 years. The maximum number amongst male patients were above

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the age of 60 years accounting for 33 (47.14%), followed by 15 (21.43%) in the age group ranging from 51-60 years. Regarding the female patients, the maximum number was in the age group of 41-50 years comprising of 15 (37.5%) followed by 12 (30%) in the age group over 60 years of age. Table no: 4.

Amongst all the reported cases of metastatic carcinoma, squamous cell carcinoma was the commonest which was seen in 72 of the cases. Amongst the subtypes of squamous cell carcinoma, keratinizing squamous cell carcinoma was the commonest type 50 (69.44%), followed by non-keratinizing 15 (20.83%) and necrotizing type 7 (9.72%). Table no: 3. These lesions presented as metastatic lesions from different primary sites such as palate, buccal mucosa, tongue and alveolus. In 4 female patients presenting with axillary lymphonde enlargement, the nodes were positive for metastases and these patients also presented with primary breast carcinoma. 3 cases were positive for metastatic carcinoma of papillary carcinoma of thyroid. 3 cases of small cell carcinoma and 2 cases of non-small cell carcinoma were also included in the report. Regarding the non-small carcinoma, lymphnode biopsy with immunomarkers and radiological reevaluation was also advised to the patient for further categorization. Regarding the case of malignant melanoma, in both the cases patients presented with inguinal lymphnode enlargement. 2 cases of undifferentiated carcinoma were also included and were advised to look for the primary site.

Table No:1 Distribution of different types of Metastatic Lesions.

Serial No	Metastatic Lesions	No of cases	Percentage
1	Squamous cell carcinoma	72	65.45%
2	Adenocarcinoma	22	20%
3	Breast Ductal Carcinoma	4	3.63%
4	Small Cell Carcinoma	3	2.73%
5	Non small Cell Carcinoma	2	1.82%
6	Pappillary Carcinoma of Thyroid	3	2.73%
7	Malignant Melanoma	2	1.82%
8	Undifferentiated Carcinoma	2	1.82%
	Total	110	100%

Table No: 2 Distribution of Metastatic Lesions at variuos sites.

Sites	No of Cases	Percentage
Cervical	55	50%
Supraclavicular	35	31.82%
Axillary	10	9.09%
Intra-abdominal (Retroperitoneal and paracolic)	3	2.73%
Inguinal	7	6.36%
Total	110	100%

Table No: 3 Disribution of subtypes of metastatic squamous cell carcinoma.

Metastatic subtypes lesions of squamous cell carcinoma	No of cases	Percentage
Keratinizing	50	69.44%
Non-keratinizing	15	20.83%
Necrotizing	7	9.72%
Total	72	100%

Table No: 4 Age and Sex distribution of the various metastatic lesions in various sites.

Age Group Distribution in Years	Sex				Total	
	Male		Female		No	%
	No	%	No	%		
< 30 Years	5	7.14	2	5	7	6.36
31-40 Years	8	11.43	4	10	12	10.91
41-50 Years	9	12.86	15	37.5	24	21.82
51-60 Years	15	21.43	7	17.5	22	20.0
> 60 Years	33	47.14	12	30	45	40.91
Total	70	100	40	100	110	100

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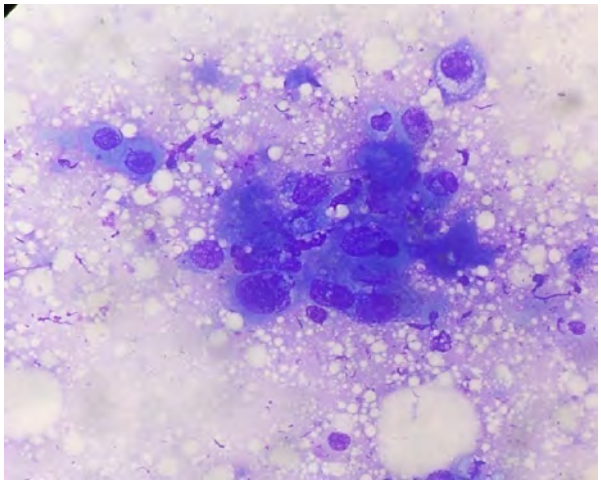

Fig 1: Smear showing metastatic cluster of squamous cell carcinoma.

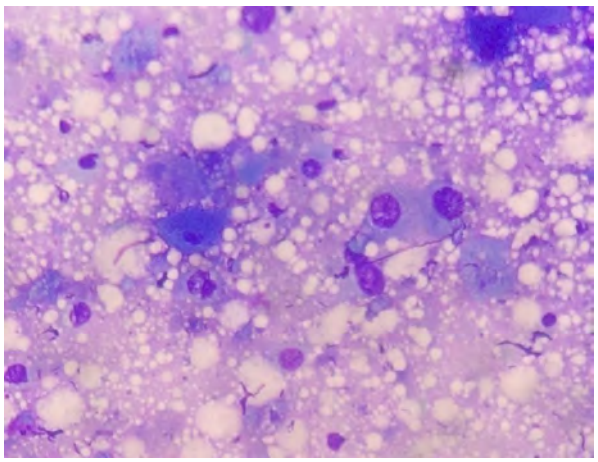

Fig 2: Smear showing malignant squamous cell in metastatic squamous cell carcinoma.

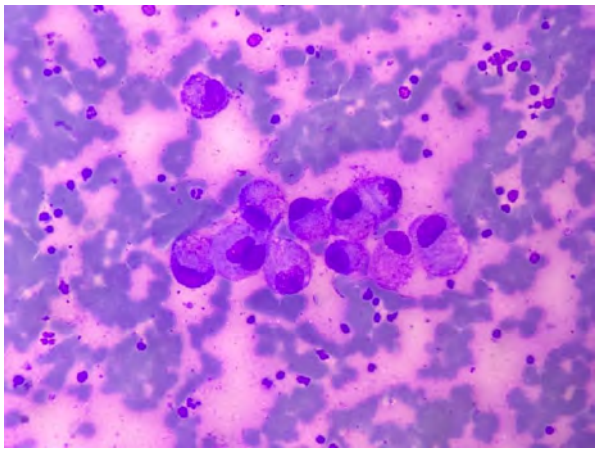

Fig 3: Smear showing malignant cluster of metastatic adenocarcinoma with signet ring component.

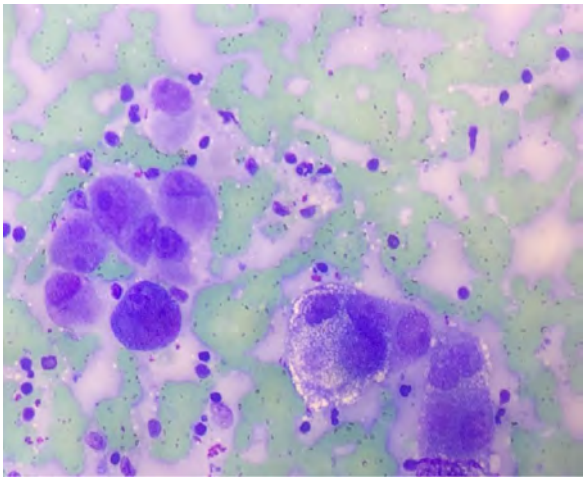

Fig 4: Smear showing malignant cluster of metastatic adenocarcinoma.

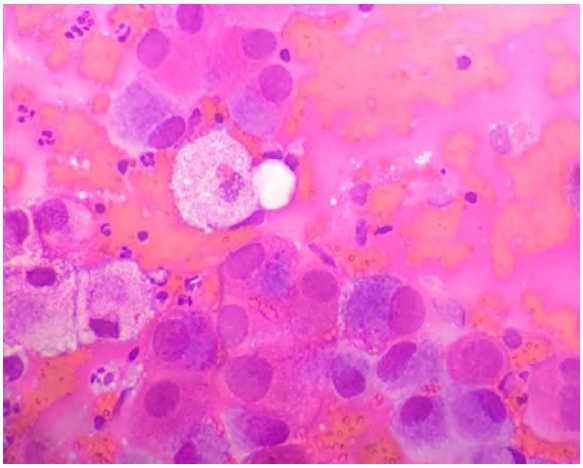

Fig 5: Pap stain showing malignant clusters of metastatic adenocarcinoma.

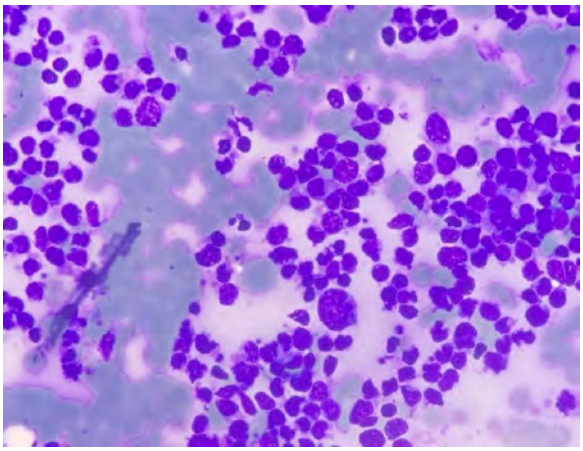

Fig 6: Smear showing malignant clusters of small cell carcinoma.

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Discussion

Recognition of lymphnode is of great value and importance for differentiation of the nature between different lesions like inflammatory lesions, metastatic or primary or neoplastic tumors**.** As we know lymphnodes are common sites for metastases in different cancers and FNAC is the diagnostic tool for lymphadenopathy in patient suspicious for malignancy, of its easy repetition and less complications. Although open biopsy still remains the golden standard for diagnosis of lymph node tumors over FNAC (Fine needle aspiration cytology) has now become an integral part of the initial diagnosis and management of patients presenting with lymphadenopathy. More than 90% of lymph node metastasis are diagnosed by initial aspiration [10]. The main aim of this study is to evaluate the role of FNAC in patients presenting with metastatic lesions of lymph node presented to our hospital.

In my present study, amongst all the metastatic carcinoma, squamous cell carcinoma was the commonest, followed by adenocarcinoma and malignant melanoma. Similar findings have been documented by other researchers [11, 12]. Out of 72 cases of metastatic squamous cell carcinoma most of the cases were keratinizing squamous cell carcinoma followed by non-keratinizing and necrotizing squamous cell carcinoma. In metastatic carcinoma the cells were arranged in sheets and singly scattered. The individual malignant cells had high N/C ratio, scant to moderate amount of cytoplasm, hyperchrmomatic nuceli and prominent eosinophilic nuceoli. In well differentiated type of squamous cell carcinoma, individual cell keratinization was observed, as was observed in the study done by Bagwan IN and Singh HK et al [13, 14]. If FNAC is of scant cellularity with abundant necrotic material, careful search is required for tumor cells, because tumor cells usually show necrotic material in the background [13, 15].

Metastatic Adenocarcinoma was the second most common entity in my study. The histological features were as follows; in cases of well differentiated adenocarcinoma, the cell arrangement was predominantly acinar, followed by papillary pattern. The cells were large, cuboidal to columnar having moderate to scant amount of cytoplasm, pleomorphic nuclei with prominent eosinophilic nucleoli. Background contained mucin and individual cells also contained intracellular mucin. Sometimes it is difficult to distinguish between adenocarcinoma and poorly differentiated squamous cell carcinoma when the cell clusters show thick nuclear membrane and prominent nucleoli [16, 17].

The third type of malignancy followed by squamous cell carcinoma and adenocarcinoma was metastatic ductal carcinoma. 4 patients who presented with breast lumps had enlarged axillary lympnode as well. Aspirated lump yielded high cellularity with malignant clusters of ductal epithelial cells. The tumor cells were bizarre and had pleomorphic nuclei with scant to moderate amount of cytoplasm and prominent eosinophilic nucleoli. Few bizarre tumor giant cells were also observed in the smears.

As we all know that malignant melanoma is a very notorious neoplasm and can metastasize to any part of the body. For example, it can occur anywhere, in head, neck, great toe, eyeballs and lymphnodes. In our study, we had two cases of metastatic melanoma, both in inguinal lymphnodes. The clusters were discohesive with pleomorphic cells having binucleate and multinucleate forms. The individual cells were large with the characteristic features of prominent eosinophilic macronucleoli, as stated by the books. In contrast to other studies, which have observed melanin pigment deposition in

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25% of metastatic melanoma, both of the cases in or study had intra and extracellular melanin pigment deposition [17, 18].

Conclusion

To conclude, Fine Needle Aspiration Cytology yielding a cellular material aids in diagnosing metastatic lesions elsewhere from the body. It can be considered the first line method, for investigating the nature of the lesions. It is an economical and convenient alternative to open biopsy of lymphnodes. No complication was recorded during the study with FNAC.

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Original Article

Exacerbation of Asthma during Pregnancy: Fetomaternal Outcomes

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Abstract

Background

Asthma is a common occurrence during pregnancy. Exacerbation during pregnancy represents a important and challenging medical problem and may result in poor feto-maternal outcomes. Until now, there are no studies comparing the fetomaternal outcomes in pregnant women with case (asthma) exacerbation and with control group (non-asthma) women of similar age and period of gestation. Therefore, we analysed selected fetomaternal outcomes retrospectively in these group of women.

Material & Methods

This is a retrospective observational comparative study. During the study period, total number of deliveries was 5,568. Women who were admitted with the diagnosis of exacerbation of asthma during pregnancy between 1st Jan 2015 to 31st Dec were included in the study. These cases were compared with random selection of controls who were admitted in the same duration of time for the delivery without asthma after matching maternal age and period of gestation. Ethical clearance was obtained before the study. Fetomaternal outcomes were compared between women with exacerbation of asthma and non-asthma.

Results

One hundred and eight pregnant women from each asthmatic and non- asthmatic group were analysed for selected fetomaternal outcomes. The mean age of asthmatic and non-asthmatic group was 23.2 ± 4.3 and 24.9 ± 3.2 years respectively**.** LSCS, UTI and preeclampsia were more common in asthmatic women. Birth weight and APGAR score was lower in babies with asthmatic women. Inpatient care and mortality rate were more common in babies of asthmatic women.

Conclusion

Exacerbation of asthma during pregnancy may result in poor fetomaternal outcome. Therefore, a more careful monitoring of women with exacerbation of asthma during pregnancy and delivery is required.

Keywords: *Asthma exacerbation, Pregnancy, Fetomaternal outcomes*

Introduction

Asthma is a common medical problem in during pregnancy. It occurs in 3-12% of all pregnancies and the prevalence is rising. Exacerbation is frequent during pregnancy and may be related to poor pregnancy outcomes [1]. There is increased risk of pre-eclampsia, gestational diabetes; placental abruption and placenta praevia in pregnant women with exacerbations of

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asthma. These women also have higher risk for breech presentation, haemorrhage, pulmonary embolism, caesarean delivery, increased intensive care unit admission and longer hospital stay [2-3]. Moderate to severe chronic asthma may be associated with increased risk of intrauterine growth retardation, small-for-gestational age, low birth weight, neonatal hypoglycaemia and preterm birth and low APGAR score [4-5]. Therefore, asthma exacerbations during pregnancy may be associated with poor fetomaternal outcomes. There are no studies comparing fetomaternal outcomes between asthma exacerbation (case) and no-asthma (control) women with pregnancy. Different studies show conflicting results on the effects of acute asthma exacerbation in pregnancy and perinatal outcomes [6]. Therefore, we carried out this retrospective analysis to see the effect of asthma exacerbation in fetomaternal outcomes in these two group of women in our setting.

Material and Methods

A retrospective observational comparative study was conducted in Nobel Medical College in eastern Nepal. Women who were admitted with diagnosis of exacerbation of asthma during pregnancy during the year 1st Jan 2014 to 31st Dec were included in the study. These cases were compared with random selection of controls who were admitted in the same duration for the delivery without asthma after matching maternal age and period of gestation. Institutional Ethical clearance was taken before the data collection. Maternal outcomes studied were period of gestation at the time of exacerbation of asthma, mode of delivery, association with preeclampsia and, urinary tract infection. Neonatal outcomes measures were period of gestation at the time of delivery, birth weight, APGAR Score and NICU admission. The collected data was entered in MS Office excel 2007 and later the file was converted into SPSS 11.5 version software. Frequency and percentage were calculated for categorical data and mean ± SD was calculated for numeric data. Chi-square test and t-test were used to find out significance of the variables. Odds ratio with its confidence interval was calculated to find out the strength of association. P value less than 0.05 was considered as significant at 95% confidence interval.

Results

A total of 108 pregnant asthmatic women with acute exacerbation and 108 pregnant non-asthmatic women were studied for maternal and neonatal outcomes. The mean age of asthmatic and non- asthmatic group was 23.2 ± 4.3 and24.9 ± 3.2 years respectively. The pre-delivery mean hemoglobin level (asthmatics = 10.10 gm% & non-asthmatic = 9.50 gm%) was also found to be nearly equal between the two groups. Out of 108 asthmatics 73 were multigravida. Mean period of gestation at the time of exacerbation was 27 weeks of gestation.

Table 1 Maternal outcomes

Characteristics		Asthma n-108	Non-Asthma n-108	OR (95%CI)	P
		n (%)	n (%)		
Labour	Spontaneous	73(67.59)	59 (54.6)	1.00	Reference
	Elective	19(17.59)	27 (25)	0.57 (0.27-1.18)	0.102
	Induced	16(14.81)	22 (20.37)	0.59 (0.27-1.29)	0.151
Mode of Delivery	Vaginal	65(60.18)	70(64.81)	1.00	Reference
	Instrumental	3(2.77)	2 (1.85)	1.62(0.21-14.34)	0.603
	LSCS	21(19.44)	9(8.33)	2.51 (1.00-6.43)	0.030
Associated disease	UTI	37 (34.25)	11(10.18)	1.00	Reference
	Preeclampsia	11(10.18)	9(8.33)	0.36 (0.10-1.26)	0.068

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More women with asthma had spontaneous labor. LSCS, UTI and preeclampsia were more common in asthmatic women.

Table 2 Neonatal outcome

Characteristics		Asthma group	Non-asthma group	t-value / OR (95% CI)	p-value
		n (%)	n (%)		
Mean POG at the time of delivery, Mean ± SD		37.63 ± 4.02	38.92 ± 4.02	2.36	0.019
APGAR scorein 5 min, Mean ± SD		7.58 ± 1.23	7.92 ± 0.88	2.34	0.021
Birth weight(kg)					
Mean ± SD (kg)		2.44 ± 0.37	2.68 ± 0.49	4.06	< 0.001
Sex	Male	39(36.1)	58(53.70)	1.00	Reference
	Female	69(63.9)	50(46.29)	2.05 (1.15 - 3.68)	0.009
Admission	No admission	78(72.22)	89(82.40)	1.00	
	Ward admission	17(15.74)	12(11.11)	1.62 (0.68 - 3.87)	0.236
	NICU admission	13(12.03)	7(6.48)	2.12 (0.74 - 6.22)	0.122
Outcome	Living	101(93.51)	105(97.22)	1.00	Reference
	Neonatal death	7(6.48)	3(2.77)	2.43 (0.55 - 12.21)	0.195

Mean POG at the time of delivery was lower in asthmatic women. Birth weight and APGAR score was lower in babies with asthmatic women. Inpatient care and mortality rate were more common in babies of asthmatic women.

Out of 13 babies admitted in NICU, 3 babies were admitted for respiratory distress syndrome, 4 babies were admitted for severe birth asphyxia ,3 babies for prematurity supportive care and rest 3 for meconium aspiration syndrome. However, in non-asthmatic group Out of 7 admitted neonate 4 were admitted for respiratory syndrome,2 for neonatal sepsis and one for neonatal jaundice. While analysing neonatal mortality in asthmatic group out of 3 preterm 2 died, 3 baby died of severe birth asphyxia and one of meconium aspiration syndrome. In non-asthmatic group 2 babies died of sepsis and one died of congenital pneumonia.

Discussion

The prevalence of asthma during pregnancy is found to be 2 % in the present study. There are only few published data about the prevalence of asthma during pregnancy. In a multicentre study by Agrawal et al [9] the overall prevalence of asthma was 2.56%In this study, we analysed selected maternal and neonatal outcomes in women who had exacerbation of asthma during pregnancy in a tertiary care center of Nepal. Exacebation can occur at any time during pregnancy but tend to occur more commonly during late second trimester [7] which is compatible with our study where mean gestational age for exacerbation was 27 weeks POG. However, a recent multicenter study done by Schaz M et al [8] found 46% exacerbation during labour. Out of 108 women, viral infection was associated in 32 (29.62%) women but in 20(18.51%) women discontinuation of regular treatment taken before pregnancy was the aggravating factor where as in rest 56(51.85%), no obvious aggravating factors was noted. In our study, we found that 37(34.25%) asthmatic women had urinary tract infection whereas in control it was 11(10.1%). Pregnant women may be more susceptible to various infection because of changes in cell mediated immunity which may lead to exacerbation of asthma during pregnancy. One study showed that pregnant women with asthma were more likely to have urinary tract infection during pregnancy (35%) than pregnant women without asthma (5%) [10].

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Stenius-Aarniala et al [1] found that preeclampsia was three times higher in pregnant women who were hospitalized for asthma than in women who did not experience an exacerbation during pregnancy. However, our study did not find significant difference in incidence of preeclampsia in asthmatic and non asthmatic group. Similar observation was noted in a case-control study by Martel et al [11] where exacerbations during pregnancy had no significant effect on the risk of pre-eclampsia.

Regarding mode of delivery 21(19.4%) patient underwent LSCS in asthmatic group where as in non-asthmatic group it was 9 (8.3%). While analyzing indication of LSCS in asthmatic group, fetal distress in 15(71.4%), non descent of head in active stage of labour in 4(19.0%) ,and prolonged second stage of labour in 2(9.5%) . However, in non asthmatic group NPOL was the most common indication in 6 (66.7%) and in 3(33.3%) the patient had undergone LSCS for fetal bradycardia and late deceleration in CTG in active stage of labour. Higher rate of cesarean section was also observed with most previous studies [12-13]. Another study done by Gustaf Rejno et al had a significant association between maternal asthma and emergency cesarean section (adj OR 1.29;95% CI 1.23-1.34) [14].

In our study we found that 11(10.1%) of asthmatic women and 9(8.3%) non asthma had antepartum haemorrhage which is consistent with finding of Meena BL et al [15].

The effect of asthma exacerbations on reduced fetal growth is independent of any changes in gestational age at delivery. Several studies which reported reduced birth weight among mothers with exacerbations during pregnancy did not find any increase in the rate of preterm delivery [16]. However, in our study where mean period of gestation at the time of delivery was 37.63 weeks in asthmatic group whereas in non asthmatic group it was 38.92 weeks which is statistically significant. Increased risk of Preterm delivery in women with asthma is due to similarities between bronchial and uterine smooth muscle hyper responsiveness [17]. Asthma if well controlled does not significantly affect the outcome of pregnancy and labour. Asthmatic women who decrease their medication during pregnancy have low birth weight babies. , lower mean gestational age at the time of delivery when compared with non asthmatic women or asthmatic females who increase their medication level during pregnancy. Thus asthma control, severity and medications do affect outcomes [18]. However asthma severity was not taken into account in our study as it was a retrospective study.

There are conflicting results regarding the impact of asthma on pregnancy . Studies indicate association of disease with low APGAR score and or intrauterine growth restricted newborns in addition to prematurity, especially related to the severity of the disease [19]. However, in meta-analysis performed by Murphy et al, no increased risk was verified for the adverse events [20]. The present study also verifies association between the asthma and adverse perinatal outcomes in certain parameters i.e. low APGAR score and birth weight. We also found asthma exacerbation was more commonly found in a woman carrying female fetus. The mechanism for exacerbation of fetal sex on asthma severity during pregnancy remains controversial. In developing male fetuses, testosterone is secreted from 8 weeks onward; testosterone level peaks at 12–16 weeks and then decreases to a low level in late gestation [21]. Testosterone potentiates b-adrenergic-mediated relaxation of bronchial tissue and inhibits response to histamine. Hence, asthmatic

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women with male fetuses may experience a protective effect, particularly from the second trimester onward. Alternatively, recent studies suggest that sex-specific factors related to the presence of a female fetus may promote activation of inflammatory pathways associated with asthma in the maternal system [22].

Conclusion

Maternal asthma is associated with serious pregnancy complication and adverse perinatal outcomes. Therefore, a more careful monitoring of women with exacerbation of asthma during pregnancy and delivery is required. Future large community based studies are advised in this region of Nepal.

Limitation

The limitations of this study include the restricted number of cases using hospital based data, assessment and difficulty in obtaining information due to the retrospective nature of the study.

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Original Article

An open label study on Depression Patient's Disability Outcomes: Comparative Evaluation of Escitalopram and Amisulpride

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Abstract

Background

Depression is an important global public health problem due to its relatively high lifetime prevalence and significant disability caused by it. The present study was conducted to compare improvement in disability outcome by Amisulpride and Escitalopram among depression patients using WHO-Disability Assessment Schedule (WHO-DAS).

Materials and Methods

The study was conducted in depression patients for 1 year in the Department of Neuropsychiatry, Nepalgunj Medical College & Teaching Hospital. A total of 117 depression patients were divided into 2 groups. Group I (58 patients) received Amisulpride tablet at a dose of 50 mg/day and Group II (59 patients) were given Escitalopram at a dose of 10 mg/day. The patients were required to follow up at 4 weeks, 8 weeks and at 15 weeks. The efficacy of the drugs was calculated by Hamilton depression rating scale (HAM-D). The improvement in functional outcome was compared between the two groups by using WHO-Disability Assessment Schedule (WHO-DAS). Appropriate statistical tools using GraphPadInstat 3.0 were used for analysis. p value < 0.05 was considered significant.

Results

HAM-D score in group receiving Amisulpride at 0 and 15 weeks was 16.92 ± 0.35 and 7.87 ± 0.29 ($p < 0.0001$). HAM-D score in group receiving Escitalopram at 0 and 15 weeks was 17.09 ± 0.39 and 6.63 ± 0.39 ($p < 0.0001$). WHO-DAS score in group receiving Amisulpride at 0 and 15 weeks was 112.54 ± 0.82 and 43.08 ± 1.41 ($p < 0.0001$) respectively. WHO-DAS in group receiving Escitalopram at 0 and 15 weeks was 113.73 ± 1.92 and 40.69 ± 1.49 ($p < 0.0001$) respectively. Intergroup comparison at 15 weeks was insignificant ($p > 0.05$). Gastrointestinal disturbances, sexual disturbances, amenorrhea, lactation, agitation and insomnia were the commonly encountered adverse drug reactions.

Conclusion

Both Amisulpride and Escitalopram showed improvement in WHO Disability Assessment Score (WHO-DAS) at the end of study period. But intergroup comparison showed no significant difference in the two groups.

***Key words**: Depression, Amisulpride, Escitalopram, WHO Disability Assessment Schedule (WHO-DAS).*

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Introduction

Depression is a commonly occurring, serious, recurrent disorder linked to diminished role functioning and quality of life, medical morbidity, and mortality [1]. The World Health Organization (WHO) has ranked depression the 4th leading cause of disability worldwide and projects that by 2020, it will be the second leading cause. The WHO defines depression as a pessimistic sense of inadequacy and a despondent lack of activity. The accompanying signs include psychomotor retardation or at times, withdrawal from interpersonal contact and vegetative symptoms such as anorexia and insomnia. Depression is associated with marked personal, social and economic morbidity affecting 9.5% of population worldwide [2].

First-line pharmacotherapy for depressive disorders is typically chosen from among the "newer antidepressants"— either a selective serotonin reuptake inhibitor (SSRI) or a serotonin-norepinephrine reuptake inhibitor (SNRI) [3]. Escitalopram, the S-enantiomer of citalopram, is a selective serotonin reuptake inhibitor (SSRI) antidepressant that is the most selective of the SSRIs [4]. However, a number of well controlled clinical trials, metaanalyses and practical clinical studies have found that only a third of such depression patients remit following adequate antidepressant treatment, while most depression patients suffer from significant core depressive or residual symptoms during their clinical course. There have been some treatment approaches to overcome such a shortage of antidepressant efficacy, such as augmentation of psychotropics other than antidepressants, switching to a different antidepressant and combinations of different antidepressants [5].

Recently, second generation antipsychotics (SGAs), have clearly demonstrated efficacy in the treatment of depression patients through a number of small scale, open label studies or randomized, placebo controlled clinical trials. Amisulpride is a substituted benzamide derivative structurally related to sulpiride. It belongs to the second-generation antipsychotic that preferably binds to dopamine D2/D3 receptors in limbic rather than striatal structures [6]. Amisulpride is indicated for the treatment of acute and chronic schizophrenia with prominent positive and/or negative symptoms due to a dose-dependent blockade of dopamine receptors [6]. In addition to antipsychotic effects, preliminary reports suggest that Amisulpride may have antidepressant effects in dysthymia. Amisulpride has been shown to be as effective as comparator in clinical studies in patients with dysthymia and/or major depression [7]. The presumed selectivity of amisulpride for D2 and D3 dopamine receptors has led to the prevailing hypothesis that modulation of dopaminergic signaling is responsible for its antidepressant efficacy.

Along with traditional indicators of a population's health status, such as mortality and morbidity rates, disability has become important in measuring disease burden, in evaluating the effectiveness of health interventions and in planning health policy [8]. Defining and measuring disability, however, has been challenging. The WHO-DAS is a semi-structured interview with an informant and with the patient to elicit responses to a number of questions on several areas of functioning: self-care, social withdrawal, participation in the household, relationship with spouse or partner, occupational role and general interests. WHO-DAS has the potential to serve as a reliable and valid tool for assessing functioning and disability across countries, populations and diseases [8]. In this regard, emerging data show that escitalopram has an ability to improve functional outcomes in depression patients

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[9]. Based on the above observations, the present study was conducted to compare efficacy of Amisulpride and Escitalopram by HAM-D and improvement in functional outcomes by WHODAS among depression patients in a tertiary care teaching hospital in Nepal.

Materials and Methods

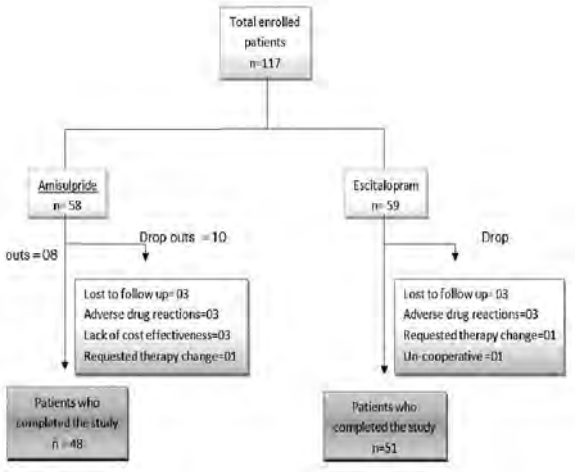
This study was conducted in the Department of Neuropsychiatry, Nepalgunj Medical College & Teaching Hospital, Nepalgunj, for a period of 1 year from the month of January 2013 till December 2013. Institutional Ethics Committee approval and written informed consent from the patients or legal guardians were taken prior to the commencement of the study. Inclusion Criteria: a. All drug naive patients attending the Neuropsychiatry OPD, of both sexes who were diagnosed as F 34.1, according to ICD 10 (World Health Organization, 2008). b. Score ≥ 14 points on the Hamilton Depression Rating Scale (1980) on the first screening visit. Exclusion Criteria: a. Use of psychoactive substances b. any systemic illness c. lactating and pregnant women d. known case of psychiatric illness as described by ICD 10 (World Health Organization, 2008), e. History of Drug reaction.

Study Design: The study was an open label study conducted from January 2013 to December 2013. A total of 117 patients diagnosed with depression were randomly divided in two groups: Group I (58 patients) received tablet Amisulpride 50 mg/day orally and Group II (59 patients) were given tablet Escitalopram10 mg/day orally. The efficacy of the drugs was calculated by Hamilton depression rating scale (HAM-D). The improvement in functional outcome was compared between the two groups by using WHO-Disability Assessment Schedule (WHO-DAS). Drug compliance was monitored rigorously by providing drug calendars where time of medicines were specified daily but no drug blood levels were monitored due to lack of any such facility locally. The patients were followed up at 4, 8 and 15 weeks. The patients were contacted telephonically and reminded about their follow ups. Adverse drug reactions were monitored at every follow up. Appropriate statistical tools using Graph PadInstat 3.0 were used for analysis. p value < 0.05 was considered significant.

Results

Out of a total of 117 patients which were included in the study, 18 patients dropped out from the study due to varying reasons: 6 patients were lost to follow up, 6 patients were lost due to

Figure 1: Flowchart of patients who completed the study



adverse drug reactions, 3 patients were lost due to lack of cost effectiveness, 2 patients requested therapy change and 1 patient was uncooperative. Overall, 99 patients completed the study: 48 patients in Amisulpride group and 51 patients in Escitalopram group (figure 1).

The mean age of the patients in the study drug groups was 46.84 ± 10.94 years. The male: female %age was 41(41.41%) and 58(58.59%). In our study, 31(31.31%) patients were residing in urban areas and 68(68.69%) patients were residing in rural areas. A total of

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47(47.47%) patients were illiterate and 52(52.53%) patients were literate. 65(65.66%) patients were farmers, 23(23.23%) patients were employed and 11(11.11%) belonged to others category (table1).

Table 1: Demographic Profile of study group

(All the values are expressed in Mean ± SD)

Variables	**Total**	
Age (Mean)	46.84 ± 10.94	
Sex (M:F)	41(41.41%): 58(58.59%)	
Residence:		
z (Urban: Rural)	31: 68 (31.31%, 68.69%)	
Education:		
Illiterate	47 (47.47%)	
Literate	52 (52.53%)	
Occupation:		
Farming	65 (65.66%)	
Employed	23 (23.23%)	
Others	11 (11.11%)	
Baseline values	**Amisulpride z**	**Escitalopram**
HAM-D	6.92 ± 2.42	17.09 ± 2.78
WHO-DAS	112.54 ± 5.68	113.73 ± 13.71

The efficacy of the drugs was calculated by Hamilton depression rating scale (HAM-D) and improvement in functional outcomes was measured by WHO-DAS. All values were expressed in Mean ± SD. At 0 week, the HAM-D Score in Amisulpride group was 16.92 ± 2.42 and in the Escitalopram group was 17.09 ± 2.78 respectively. There was no significant difference between the two groups at the start of study ($p > 0.05$). Patients were followed up at 4, 8 and 15 weeks. Progressive improvement was seen in both the groups over the study period. At 15 weeks, the HAM-D score in Amisulpride group was 7.87 ± 2.01 and in the Escitalopram group was 6.63 ± 2.78 respectively. Intragroup comparison was done between baseline and 15 weeks and highly significant improvement was seen in both groups ($p < 0.0001$). At 15 weeks, intergroup comparison was made between the two groups which was insignificant ($p > 0.05$) (table 2).

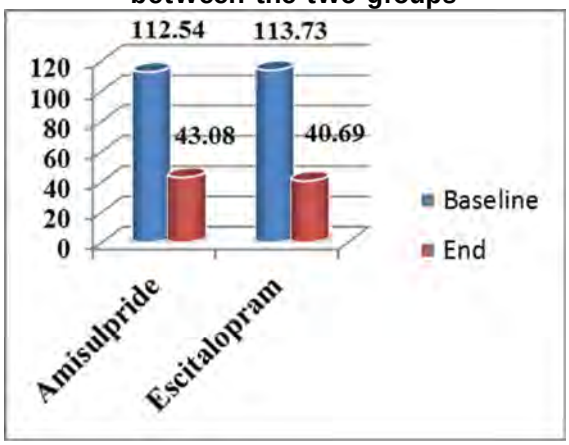
Table 2: Efficacy as per HAM-D

(All the values are expressed in Mean ± SD)

Drug	**0 weeks**	**15 weeks**	**p- value**
Amisulpride	16.92 2.42	7.87 ± 2.01	< 0.0001
Escitalopram	17.09 ± 2.78	6.63 ± 2.78	< 0.0001

At 0 week, the WHO-DAS in Amisulpride group was 112.54 ± 5.68 and in Escitalopram group was 113.73 ± 13.71 respectively. Intergroup comparison was insignificant ($p > 0.05$). At 15weeks, WHO-DAS score in Amisulpride group was 43.08 ± 9.77 and in Escitalopram group was 40.69 ± 10.64 respectively (figure 2). Intragroup comparison was done between baseline and 15 weeks which was highly significant in both the groups ($p < 0.0001$) (figure 2). Intergroup comparison at the end of study was insignificant ($p > 0.05$) (figure 2).

Figure 2: Comparison of WHO-DAS between the two groups



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Discussion

In the present study, there was a higher prevalence of depression in females which was in accordance with previous studies by Ramachandran et al depicting that women were more commonly suffering from depression [10]. The greater prevalence of depression among women is not fully understood, although potential contributors include different responses to stressful life events, genetic predisposition and hormonal differences [11]. The mean age in our study was 46.84 ± 1.1years which was comparable with previous studies by Dutta et al where incidence of depression was seen in 30-51 years age group [12]. More depression patients were seen in rural areas as compared to urban areas in the present study. This was comparable with previous studies by Paritala et al, where rural back ground subjects were found to be somatising more than the urban subjects [13]. In our study more number of literates were suffering from depression which was comparable with previous study by Paritala et al [13].

A comparative evaluation of Escitalopram and Amisulpride was done in depression patients by measuring improvement in functional outcome using WHO Disability Assessment Schedule in this 15-week study. Escitalopram is an allosteric selective serotonin reuptake inhibitor (SSRI) with some indication of superior efficacy in the treatment of major depressive disorders. The results of our study revealed highly significant improvement in HAM-D in depressive patients over the study period. Intragroup comparison was made between baseline and 15 weeks in Escitalopram group and highly significant improvement was seen ($p < 0.0001$). This was comparable with previous studies where efficacy of Escitalopram has been proven [14]. Amisulpride, a selective D2/D3 receptor second generation antipsychotic is indicated for the treatment of acute and chronic schizophrenia [15]. The presumed selectivity of amisulpride for D2 and D3 dopamine receptors has led to the prevailing hypothesis that modulation of dopaminergic signaling is responsible for its antidepressant efficacy. In the present study, the antidepressant effect of Amisulpride was compared at baseline and at 15 weeks in depressive patients and highly significant improvement was seen ($p < 0.0001$). This was comparable with previous studies by Ravizza L et al where antidepressant role of amisulpride has been proven [16].

Amisulpride has some selectivity for presynaptic dopamine autoreceptors, and exhibits limbic versus striatal selectivity, particularly at low doses, and it has been suggested that this might account for its therapeutic profile [18].

The improvement in functional impairment was measured by WHO-DAS. In the present study, highly significant improvement was seen in both Escitalopram and Amisulpride groups. Previous studies by Kessler RC et al have shown improvement in WHO disability assessment scale with escitalopram [18]. A study by Gutierrenz F et al has shown improvement in WHO-DAS by second generation antipsychotics proving that patients who take medications that are efficacious and acceptable have a better chance of achieving superior functional improvements compared to those who take agents that are less efficacious and/or not as well accepted [19].

At the end of the study period, intergroup comparison was made between Escitalopram group and Amisulpride group which revealed no significant difference ($p < 0.05$), indicating both the drug were equally efficacious in improving disability score in depression patients.

Study Limitations: The study was an open label study. Both doctors and patients were aware of the treatments. Hence there

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could be chances of bias. Also, the patients were followed up to only 15 weeks. A longer duration of follow up could have yielded different results.

Conclusion

Both Escitalopram and Amisulpride were highly effective in improving disability outcome in depression patients according to WHO-DAS. But intergroup comparison revealed no significant difference between the two groups.

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Original Article

Neurological Sequelae in Acute Encephalitis Syndrome one month post discharge from the hospital in the Children Aged 1-14 years

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Abstract

Introduction

Encephalitis is a complex clinical syndrome of the central nervous system (CNS) associated with fatal outcome or severe permanent damage including cognitive impairment, behavioral impairment and epileptic seizures. It is important to understand the clinical spectrum and outcome of acute encephalitis syndrome(AES) at local level to better define problem and to draw inferences for management and policy formulation.

Material and Methods:

This study was a hospital based observational, longitudinal and descriptive study conducted at Department of Pediatrics; Nobel Medical College Teaching Hospital, Biratnagar. Seventy cases with a diagnosis of AES (irrespective of the underlying etiology), were studied over a period of one year. All cases from 1 to 14 years of age fulfilling the standard WHO case definition of AES were included in the study. A pre-designed semi-structured questionnaire was being used to obtain the clinical profile and investigations. The cases were followed after one month post discharge from the hospital and the outcomes were recorded.

Results:

On follow up of the cases at the end of 1 month, 35 (50.7%) cases were found to have complete cure and were labelled as cured. Neurological sequelae were seen in 8(11.6%) cases and were labeled as not cured. Total death was documented in 26(37.7%) of the cases.

Conclusion:

Despite of early diagnosis and aggressive treatment neurological sequelae is not uncommon in AES. So, regular follow up and early rehabilitative efforts should be instituted for all cases of AES post discharge from the hospital.

Keywords: *Fever, Altered sensorium, Acute encephalitis syndrome, Neurological Sequelae.*

Introduction

Encephalitis is a clinical syndrome of the central nervous system (CNS) associated with fatal outcome or severe irreversible damage including cognitive and behavioral impairment and epileptic seizures. It is often acute, although symptoms may progress with rapid onset, causing severe debilitation to patients including otherwise healthy children [1]. AES may manifest as encephalitis, meningoencephalitis or meningitis. A hospital based study conducted in Dharan showed mortality of 8.3% and neurological sequelae of 50% among the AES cases [2].

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WHO defines AES as an acute onset of fever and a change in mental status (including symptoms such as confusion, coma, disorientation or inability to talk) and/or new onset of seizures (exception of simple febrile seizures) in a person of any age at any time of year [3]. Acute encephalitis can be caused by several conditions, including bacterial or viral infection in the brain, complication of an infectious disease, ingestion of toxic substances and complication of an underlying malignancy. Hence differentiating encephalitis from other similar conditions continues to be a challenging task. Infection of the CNS is considered to be the major cause of encephalitis and more than hundred different pathogens have been recognized as causative organism among which Japanese encephalitis being one quarter of all diagnosed cases of encephalitis [1]. Japanese encephalitis, Herpes simplex, Arbo viruses, Epstein barr virus, Enteroviruses, Influenza, Adeno virus, Varicella-zoster, Nipah virus, Echo virus, Rhabdo virus, Mycoplasma pneumonia are the most frequent pathogens but Varicella zoster, and Enteroviruses like Polio virus, Coxsackie have increased in incidence and occur more in younger age groups [4]. Neurological sequelae in JE are the common observation. Neurological sequelae were defined by the presence of the following at discharge; impaired consciousness, weakness characterized by either monoparesis, hemiparesis, or quadriparesis, focal or generalized abnormal tone, focal or generalized abnormal reflexes, diagnosis of new onset or recurrent seizures, or new or recurrent extra pyramidal movement disorders.

Materials and Methods

The Study was conducted in the Department of Pediatrics at Nobel Medical College and Teaching Hospital, Biratnagar, Nepal from May 2014-April 2015 for a period of one year. All the pediatric patients of age group 1-14 years fulfilling the WHO criteria for acute encephalitis syndrome were enrolled in the study.

A complete evaluation of the patient was done with detailed history and clinical examination, with a special focus on symptoms and signs of acute encephalitis syndrome. All the relevant informations were documented on pre-designed semi-structured questionnaires

A thorough clinical examination was done with a special attention on neurological system. The signs of meningeal irritation was examined with examination of nuchal rigidity, kernig sign and brudzinski sign.

Extrapyramidal features in the form of dystonia, dyskinesia and any other movement disorders were noted. Any form of neurological deficit after detail neurological examination was noted.

To identify variables associated with complete recovery and sequelae at the time of discharge and sequelae at 6 weeks were set as dependent variables and all others as independent variables. Data were analysed first using univariate regression analysis.

Results

Majority of cases (37)52.9% in our study were discharged without neurological sequelae. Twenty-one (30%) cases expired. One month follow up assessment was done after one month of discharge. Parents were contacted by telephone and invited to re-attend the hospital. On follow up of the cases at the end of 1 month, (35)50.7% cases were found to have complete cure and were labeled as cured. Neurological sequalae were seen in (8)11.6% cases and were labeled as not cured. Total death was documented in (26)37.7% cases and 21.13% patients had neurological sequelae at the time of discharge. On follow up of the cases at the end of 1 month, (35)50.7% cases were found to have complete cure and no

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mortality was documented among the follow up cases.

In our study neurological sequelae in the form of left sided hemiparesis in (4)50% cases,quadriparesis in (2)25% cases and seizure disorder in (2)25% cases. Association of focal neurological deficit and extrapyramidal features with neurological sequelae have not been reported in our study.

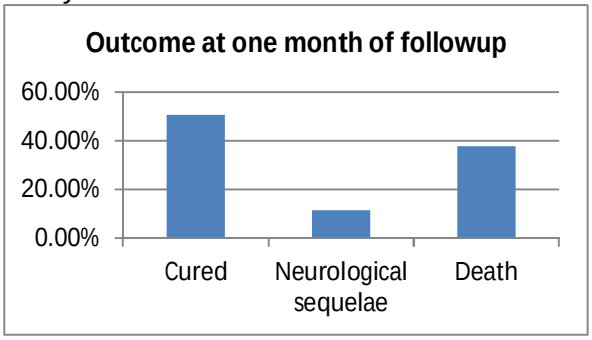

Figure 1: Outcome at 1 month of follow up

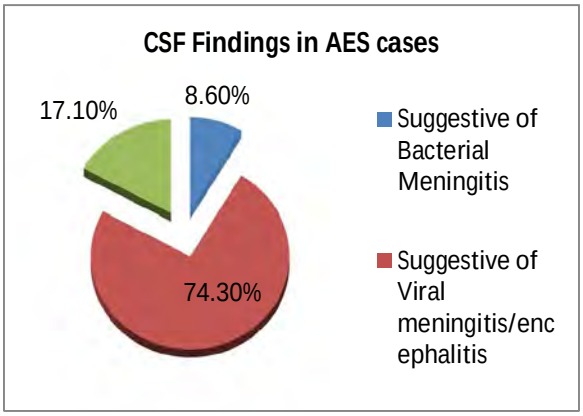

Figure 2: CSF findings in AES cases

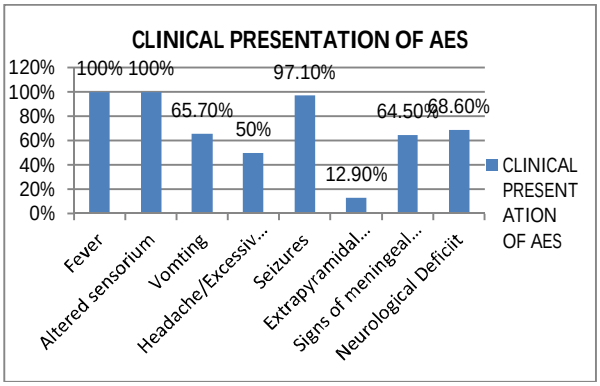

Figure 3: Clinical presentation of AES

Discussion:

Acute encephalitis is a major public health problem and treating pediatricians should be aware that patients with AES of unknown viral etiology also have a high risk of morbidity and mortality [5].Our study showed that AES affected all age group from children to adolescence. The mean age of the case was 6.59 (± 3.831) years. There was higher incidence of AES in males i.e (48) 68.6% as compared to female which was only (22) 31.4%.

The long-term outcome of encephalitis in children has not been well characterized; however, the evidence is concerning for high rates of neurocognitive and behavioural sequelae. A study from Finland showed cognitive and personality problems in over half [6] and an Israeli study showed moderate to severe sequelae in 63% of children with high rates of behavioural problems; low IQ scores, attention deficit hyperactivity disorder and learning disorders were over represented [7]. In our study, neurological sequelae in the form of left sided hemiparesis in (4)50% cases, quadriparesis in (2)25% of the cases and seizure disorder in (2)25% cases.

In contrast other studies had shown right sided hemiparesis more common [2, 8]. Hemiparesis was the most common neurological sequelae found in our study.

In our study, none of the symptoms were significantly associated with mortality at discharge. Presence of signs of meningeal irritation was not found to be statistically significant similar to results observed in study kakoli et al [9].

In contrary to this, the study conducted by Avabratha et.al. in Bellary, Karnataka, revealed association between mortality and meningeal signs [10]. There were 7 cases(10%)of postencephalitic epilepsy in a study done by Fowler et al [6] which showed epilepsy as one of the most important sequelae seen in AES cases as seen in our study.

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Association of focal neurological deficit and extrapyramidal features with neurological sequelae has also been reported in few studies which was not present in our study [5]. On follow up of the cases at the end of 1 month, (35)50.7% cases were found to have complete cure and were labelled as cured. Neurological sequelae were seen in (8)11.6% cases and were labelled as not cured.

Conclusion

To conclude, although AES is associated with high rates of mortality and debiliating neurological sequelae, early diagnosis and aggressive treatment, timely follow up, early institution of rehabilitative care and holistic approach from the family and medical personnels, a complete vocational cure can be attained as seen from our study.

However, to better understand the clinical presentation, outcome and the association of clinical profile with the outcome, we need more of multicentric, randomized clinical trial.

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Original Article

Appendicular Mass: A Conservative Approach

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Abstract

Introduction

Appendicular mass is one of the most common complications following acute appendicitis and seen in 2-6% of the patients. The treatment of appendicular mass is controversial with three general approaches. The aim of this study is to evaluate outcome of conservative approach.

Material & Methods

A retrospective analysis of the patients managed with appendicular mass from 1st January to 31st December 2014 was carried out in NMCTH, Biratnagar. A total of 173 patients with diagnosis of appendicular mass admitted in emergency and OPD of our hospital were studied. All age groups and both sex were included.

Results

Out of 496 patients with appendicitis, 173 patients [34.87%] were diagnosed with appendicular mass. Age range of the patient in the study varied between 4-84 years and maximum patients found in the age group of 21-30 years. Onset of symptoms was between 2-6 days and greater number of patients reporting between 5-6 days. During study period 10(5.7%) patients came with recurrence, 9 [5.2%] developed abscess, 35(20.23%) patients came for interval appendicectomy, whereas 119 [68.78%] failed to come for a follow up.

Conclusion

Our study concluded that the appendicular mass can be managed successfully by conservative approach, although few complications may arise which can be managed by surgical intervention.

Key words: *Appendicular mass, Conservative approach, Interval appendicectomy.*

Introduction

Acute appendicitis is one of the most common acute surgical conditions of the abdomen and is encountered in 2 – 6% of patients [1]. The appendicular mass usually develops following an attack of acute appendicitis and is the end result of a walled-off appendicular perforation and represents a pathological spectrum ranging from phlegmon to abscess [2,3]. These masses include a spectrum of clinical presentations superseded by pathological processes ranging from localized collections of pus (peri-appendicular abscesses) to inflamed appendices which have become adherent to the omentum and surrounding viscera to form a phlegmon. The definitive treatment of acute appendicitis is appendicectomy. If timely appendicectomy is not done, the patients

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develop a mass in the right iliac fossa (Appendicular mass) as one of the early complications [4,5].

Management of an appendicular mass is controversial with three general approaches usually employed[6,7]. 'Classical management' involves initial conservative management with broad spectrum antibiotics and intravenous fluid until the inflammatory mass resolves. Patients are offered interval appendicectomy 4-6 weeks later, believing that an early appendicectomy in these cases is hazardous, time consuming and may lead to life threatening complications such as fecal fistula[8-10].

Semi conservative approach involves performing immediate appendicectomy during the initial admission after resolution of the inflammatory mass or entirely conservative approach without interval appendicectomy. Of these, the advantage of Classical management technique is effective in the majority of patients. It helps to prevent recurrence of acute appendicitis and avoids misdiagnosing an alternative pathology such as malignancy [11-14].

Therefore, the present study was undertaken with the aim to evaluate the outcome of conservative approach followed by interval appendicectomy so as to achieve complete resolution of the inflammatory mass and the disappearance of symptoms in the patient before any surgical intervention.

Material and Methods

A retrospective study regarding the patients managed with appendicular mass, was conducted in Department of General Surgery, Nobel Medical College and Teaching Hospital, Biratnagar, from 1st January 2014 to 31st December 2014, after taking ethical clearance from Institutional Review Committee. Among the total 496 patients with appendicitis admitted in hospital, 173 patients were diagnosed with appendicular mass. All the age group and both the sex were included in the study. The appendicular mass was either diagnosed on the basis of physical examination or on radiological evaluation. All the patients with the diagnosis of appendicular mass were managed with standard conservative approach of Ochsner Sherren regimen followed by interval appendicectomy after 4-6 weeks.

Parameters included in the study were demographic data, incidence, age group, duration of symptoms, length of hospital stay, complications, recurrence of appendicitis, rate of elective appendicectomy and follow ups. Data were analyzed with SPSS software.

Results

A total of 496 patients with appendicitis were managed in our hospital during the study period. Among them, 173 patients diagnosed with appendicular mass were included for analysis. Therefore, total incidence of appendicular mass was 34.87%. Out of them female patients were 107 and male patients were 66. Therefore female: male ratio was 1.62:1.

Age range of the patient included in the study varied between 4-84 years and the median age was 30 [As depicted in table 1]. The patient had onset of the symptoms between 2-6 days, with greater number of patients reporting between 5-6 days [45.08%] [As shown in Table 2]. Overall length of hospital stay varied between 2-15 days with an average of 4-5 days. During conservative treatment 9[5.2%] developed appendicular abscess. Among them 6 cases were managed with ultrasound guided drainage while 3 cases needed laparotomy drainage and appendicectomy. Recovery was seen in all the managed cases.

During study period 10 [5.7%] cases returned with repeat attack of acute appendicitis and all of them underwent successful appendicectomy.

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Similarly, 35 [20.23%] patients returned for interval appendicectomy at the duration of 6 weeks to 10 months. All of them underwent appendicectomy, although there was difficulty in finding appendix during surgery in few cases.
Other 119[68.78%] patients failed to come for follow up.

Table 1.Age distribution

Age group	No of patients
1-10	7
11-20	49
21-30	33
31-40	24
41-50	20
51-60	15
61-70	12
71-80	10
81-90	3

Table 2. Duration of symptoms at presentation

Duration of symptoms	No of patients	Incidence %
< 48 hrs	9	5.2
3-4 days	35	20.3
5-6 days	78	45.08
> 6 days	51	29.4

Discussion

Acute appendicitis is a very common surgical cause of acute abdomen. With prolongation of duration of symptoms, in some patients, appendicular mass develops [15].
In the present study appendicular mass was found in 34.87% whereas other study conducted in different places the incidence ranges from 2-6%[1]. The incidence is found to be higher in our study, as reason may be the late presentation of the patients from the areas where emergency medical facilities are not available or may be due to financial problem or ignorance where patients either do not seek medical advice or take the analgesics over the counter. The maximum patients in this study,i.e. 49 (28.32%) were between the age group of 11 – 20 years, however the age varied from 4 - 84 years suggesting any age group prone to develop mass. The female to male ratio is 1.62:1 which is in contrast to other studies where male predominance is found. Majority of the patients who presented with lump had symptoms between 5-6 days. In other studies, it was found to be 3-4 days. Reason might be the patient in our region coming from distant places and habit of getting treatment by local practitioner [16].
During the conservative management, appendicular abscess may develop in few cases [17]. In the present study, appendicular abscess developed in 9[5.2%] of the patients who were managed with either ultrasound guided drainage or laparotomy drainage and successful appendicectomy. Failure of conservative management has been reported in 2-3% of cases with urgent exploration [17].
In our study, 10 [5.7%] cases returned with repeat attack of acute appendicitis and all of them underwent successful appendicectomy.
Similarly, 35 [20.23%] patients returned for interval appendicectomy at the duration of 6 weeks to 10 months. All of them underwent appendicectomy, although there was difficulty in finding appendix during surgery in few cases. Other 119[68.78%] patients failed to come for follow up; actual cause for it could not be found. Reason might be either the patients fully recovered and did not find a need to seek medical advice, or the patients went to other centers. A meta-analysis conducted over a 13 years period, including 1012 patients concluded that the interval appendicectomy was not justified, as the majority [95%] of the patients managed conservatively will not develop recurrence[3]. The success rate of initial conservative management varies between

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76-97%. In our study out of 173 patients 9[5.2%] developed abscess. Remaining patients were managed conservatively. So our success rate of conservative management was 94.8 % comparable to other studies[18].

According to the results of our study, most of the patients were managed successfully by conservative approach with only few needing surgery for complications.

Conclusion

It can be concluded that the appendicular mass can be managed successfully by conservative approach, however few complications may arise which may need urgent surgical exploration. Although there were few limitations of the study that has to be considered for future, is that it has been conducted in a single center, with small sample size and there was no evidence regarding the patients who failed to come for a follow up.

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Original Article

Incidence and Susceptibility of Uropathogens Isolated among the Patients at Tertiary Care Hospital in Eastern Nepal.

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Abstract:

Background

Urinary Tract Infection (UTI) is one of the most common infectious diseases which affect almost all ages groups of population. Production of β-lactamases is responsible for antibacterial resistance which is frequently observed in *Enterobacteriaceae* isolates, particularly by E*. coli* and *Klebsiella pneumoniae*. This investigation has been carried out to determine the current status of prevalence and susceptibility of uropathogens isolated among the patients at tertiary care hospital in eastern Nepal.

Material and Methods

This study was done at the department of Microbiology, Nobel Medical College Teaching Hospital, Biratnagar, Nepal during May 1st 2015 to October 31st 2015. Midstream clean-catch urine was sampled from 1730 suspected urinary tract infection patients of different age and sex groups. Uropathogens were recognized in term of standard and specific microbiological techniques and antimicrobial susceptibility pattern was determined by Kirby Bauer Disc diffusion method following Clinical and Laboratory Standards Institute (CLSI) guidelines.

Results

Out of 1730 suspected specimens Culture resulted a total of 761 (43.98 %) positive and 969 (56.02%) negative among that significant growths of uropathogens including 700 (91.98 %) unimicrobial and 60 (7.88 %) polymicrobial growths. In term of Gender distribution 443 (25.60 %) were male and 1287 (74.40 %) were female hence the ratio is 0.34:1, respectively. *E. coli* was the leading isolate (66 %), followed by *Klebsiella spp*. (12 %), *Enterococcus spp*. (8 %), *Pseudomonas spp*. (6 %), *Acinetobacter anitratus* (5 %), *Proteus spp*. (3 %).

Conclusion

The high frequency of multidrug resistance in bacterial uropathogens was seen. Principally, resistance patterns were seen higher for amoxycillin, co-trimoxazole, flouroquinolones and third-generation cephalosporins, Existing uropathogens highlights the highest rate of vulnerability to nitrofurantoin,amikacin and gentamicin which provide much better antibiotic coverage and can be adapted for practical treatment of urinary tract infections.

Key words: *Antimicrobial susceptibility, mid-stream urine (MSU) , uropathogens, Urinary tract infection(UTI)*

Introduction

Urinary tract infection(UTI) is the most common in Nepal and most common nosocomial infection [1]. In urinary tract infections (UTIs) cystitis and pyelonephritis are considered to be the 2nd most common

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infections, they account for about 150-250 million cases globally per anum [2,3]. Due to rational uses of antibiotic and other factors, the resistance of antibiotic is increasing and thus it is necessary to monitor the resistance pattern for getting better empirical therapy [4]. Most of the Uropathogens have made resistance to normally used drugs , which narrows the area of an effective treatment . β-lactamases enzymes production is the most common resistance mechanisms [5]. The specimen shows $> 10^5$ organisms per ml which refers to considerable bacteriuria and mainly caused by, *Escherichia coli* which is responsible for > 75 % of cases [6, 7]. Other leading agents are *Enterobacteriaceae*, *Staphylococcus saprophyticus* and *Enterococcus faecalis*. Most commonly UTI are caused by unimicrobial but polymicrobial infections also take place [8].

Materials and Methods

The study was undertaken with the uropathogens isolates obtained from specimens of patients visited for a period of 6 month from May 1st 2015 to October 31st 2015, in the department of Microbiology in a tertiary care hospital Nobel Medical College and Teaching Hospital, Biratnagar, Nepal. The study was deputed after approval of ethical committee and approved by Institutional Review Committee (IRC).

Selection of cases & inclusion criteria: Written consents were taken from all cases prior to the inclusion in the study. All suspected patients of UTI were interviewed directly with prearranged questionnaire to collect data about type of patient (hospitalized- or out-patient), symptoms, prior history of UTI, and underlying diseases. Only those cases shown at least one of the clinical features of UTI (dysuria, frequency, or prior history of UTI) were included. A midstream and/or catheter-catch urine sample is included. Microscopic demonstration of pus cells > 5/HPF (high power field) in a centrifuged deposit of urine was included. Patients who did not have a course of antibiotics at least two weeks prior.

Exclusion Criteria:

1. Those clinical samples which shows polymicrobial & insignificant growth.
2. Patients with a course of antibiotics at least two weeks' prior.
4. Incomplete culture form, without proper labelling (date, time, age, lab number and sex), were excluded.

The study population included patients visiting the hospital suspected of UTIs. Patients included in the study were given pre-labelled leak proof, sterile, screw-capped container to collect the mid-stream urine (MSU) sample. Urine samples from all age group were included in the study. The collected urine specimens were processed in the Microbiology laboratory within 2 hr of collection. Microscopic demonstration of pus cells > 5/HPF (high power field) in a centrifuged deposit of urine sample were streaked directly on MacConkey agar (MA) plates and Blood agar (BA) plates. These plates were incubated at 37 °C aerobically and after overnight incubation, they were checked for bacterial growth. The isolates were identified by their colony morphology, Gram staining, catalase test, oxidase test, and other appropriate biochemical tests as per standard laboratory methods of identification. Antibiotic susceptibility testing of bacterial isolates was done by Kirby Bauer disk diffusion method following CLSI guidelines using Mueller Hilton Agar (MHA) [9]. The antibiotic discs were obtained from HiMedia Laboratories (India). An isolate was considered as MDR if it was resistant to three or more drugs of different classes/groups of antibiotics as for CLSI guidelines.

Results

A total of 1730 cases of different age and sex those who fulfilled the inclusion criteria

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of suspected UTI were included in this study. Of 1730 cases, 443 (25.60 %) were male and 1287 (74.40 %) were female. Culture of 1730 urine samples yielded a total of 761 (43.98 %) positive bacterial growths and 969 (56.02%) negative, including 700 (91.98 %) unimicrobial (single bacterial species) and 60 (7.88 %) polymicrobial (pair of two different bacterial species) growths. *E. coli* was the predominant isolates 503 (66 %), followed by *Klebsiella spp*. 91 (12 %), *Enterococcus spp*. 61 (8 %), *Pseudomonas spp*. 45 (6 %), *Acinetobacter anitratus* 38 (5 %), *Proteus spp*. 23 (3 %). Out of 503 (66%) *E.coli, MDR E.Coli* was 54 (10.73%) which shown sensitive to Nitrofurantoin 88%, Amikacin 65%, Imipenem 65%, Azetronam 53%, Ampicillin-Salbactam 35%.

Culture positive & negative % is shown in table 1, gender distribution in table 2, Pattern of bacterial isolates in table 3. Antibiotic sensitivity of *E.coli, Klebsiella & Proteus* are shown in table 4. Table 5 shows sensitivity pattern of *Enterococcus* & Table 6 shows sensitivity pattern of *Pseudomonas, Acinetobacter & MDR E.coli.*

Table 1: Urine culture result

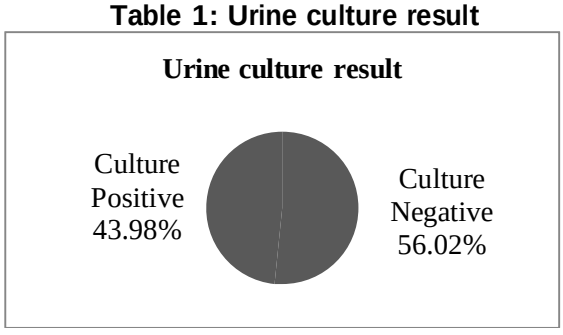

Table 2: Gender distribution for rate of isolation in urine culture

Males No (%)	Females No (%)
443 (25.60%)	1287 (74.40 %)

Table 3: Pattern of bacteria isolated from urine culture

Bacterial spp.	NO of isolates (%)	No of isolates
E.coli	66 %	503
Klebsiella spp.	12 %	91
Enterococcus spp.	8 %	61
Pseudomonas spp	6 %	45
Acinetobacter anitratus	5 %	38
Proteus spp	3 %	23
Total	100%	761

Table 4: Antibiotic Sensitivity Pattern Of E.Coli, Klebsiella spp. & Proteus.

Antibiotics sensitivity %	Isolates		
	E.coli	Klebsiella spp.	Proteus
NIT	94	70	80
GEN	93	70	40
CAZ	39	44	60
NX	41	63	60
AMP	5	4	20
CTX	39	44	60
CIP	8	10	NT

NIT;Nitrofurantoin , GEN;Gentamicin, CAZ;Ceftazidime, NX;Norfloxacin, AMP;Ampicillin, CTX;Cefotaxime, CIP;Ciprofloxacin, NT;Not tested.

Table 5: Antibiotic Sensitivity Pattern of Enterococcus spp.

Antibiotics	sensitivity %
NIT	79
NX	53
CIP	21
p	26
HLG	68
VA	95
TEI	89

NIT;Nitrofurantoin, NX;Norfloxacin, CIP;Ciprofloxacin, P;Penicillin, HLG;High Level Gentamycin, VA;Vancomycine, TEI;Teicoplanin.

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Table 6: Antibiotic Sensitivity Pattern Of Pseudomonas, Acinetobacter anitrarus And MDR E.Coli.

Antibiotics sensitivity %	Isolates		
	Pseudomonas spp.	Acinetobacter anitratus	MDR E.Coli
NIT	10	20	88
GEN	NT	0	NT
CAZ	86	NT	0
NX	67	NT	0
AMP	13	NT	0
CTX	38	0	0
CIP	82	0	0
TEI	NT	NT	65
AK	91	80	65
IPM	100	60	65
PIT	20	0	6
COT	83	NT	12
AT	92	40	53
A/S	75	NT	35
LE	88	0	18
TOB	83	0	NT
CPM	29	NT	NT

NIT;Nitrofurantoin , GEN;Gentamicin, CAZ;Ceftazidime, NX;Norfloxacin, AMP;Ampicillin, CTX;Cefotaxime, CIP;Ciprofloxacin, TEI;Teicoplanin , AK;Amikacin IPM;Imipenem, COT;Cotrimoxazole, AT;Azetronam, A/S; Ampicillin-Salbactam, LE;Levofloxacin, TOB;Tobramycin, CPM;Cefepime , NT;Not tested

Discussion

Our research informs about the distribution and the antibiotic sensitivity pattern of uropathogens which is isolated from the UTI patients. Our research focussed that *Enterobacteriaceae* are most common contributory organism for UTI, a finding which is similar to the report published before [10]. In term of Gram-negative bacteria, highest rate of resistance has been seen towards first-line drugs like amoxicillin (89.75%), co-trimoxazole (53.6%), and norfloxacin (42.25%). Nonetheless, other drugs like amikacin and nitrofurantoin demonstrated the least resistance. Our research, which resembles the previous reports, shows that *E. coli* is the leading contributing organism of UTIs with high rate of antibiotic resistance. In *E. coli* Cefotaxime, ceftazidime amoxicillin, ciprofloxacin, norfloxacin are proved to have very high frequency ranging from 61% to 95 % of resistance, moderate resistance goes to gentamicin (40.68 %), and a low resistance to nitrofurantoin . similarly, *Klebsiella spp*. and Proteus spp. were vulnerable respectively to nitrofurantoin & gentamycin only but all other antimicrobial agents belong to low frequency of susceptibility (< 50 %). *Enterococcus spp* shows minimum resistance to nitrofurantoin, but moderately high resistance against penicillin, ciprofloxacin, norfloxacin & gentamycin. *Pseudomonas spp*. was vulnerable to amikacin, ciprofloxacin & norfloxacin only and showed 63% -83% resistance to all other first line drug. *Acinetobacter anitratus* was 80 % sensitive to amikacin & 20% to nitrofurantoin but showed > 95% resistance to all remaining antimicrobials. In female UTI was found stronger than in male [11]. This result has been co -relative regarding the study from Nepal, India and other countries [11,12]. Urinary tract infection is rapidly rising as a significant community acquired and nosocomial bacterial infection. Moreover, antimicrobial resistance to various classes of antibiotics to uropathogens shows a major health problem in different parts of the. world [13]. Female patients are quite active in term of urine culture than the male patients. But, Significant microbial growth was higher in case of female. The reason behind it is the cause of Urethral opening, short urethra and complicated physiology especially during pregnancy [14]. In between the age group from 20–40 are sexually active which is the most important risk factor in young women. Certain types of contraceptives can also invite the risk of UTIs [14, 15]. All ESBL

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positive *E. coli* strains were resistant to cefotaxime, ceftazidime and ceftriaxone. This result is common with the study done by Islam et al. [14,16]. All E. coli isolates were resistant to cefotaxime and ceftriaxone in similar study by Chander and Shrestha et al [17].

Conclusion

We found the high degree of multidrug resistance among bacterial uropathogens. Specially, the amount of resistance to amoxycillin, co-trimoxazole, flouroquinolones and third-generation cephalosporins were higher and these antibiotics ought to be ignored. Existing uropathogens highlights the highest rate of vulnerability to nitrofurantoin, amikacin and gentamicin which provide much better antibiotic coverage and can be adapted for practical treatment of urinary tract infections.

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Original Article

Evaluation of Serum Creatinine in Hypertensive Patient

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Abstract

Background

The study is carried out to evaluate serum creatinine in hypertensive patients in Nobel Medical College Teaching Hospital, Biratnagar, Nepal.

Material and Methods

The study was carried out on total 100 subjects, with

a) Case groups (Hypertensive Subjects), n = 50
b) Control groups (Non-Hypertensive Subjects), n = 50 with no present and past family history of hypertension,

in the Department of Biochemistry, Nobel Medical College Teaching Hospital, Biratnagar, Nepal from 21st March 2013 to 30th july2014, after Institutional Ethical Approval.
venous blood sample was collected and sample was analysed for serum creatinine level by Jaffe's method.

Result

serum creatinine is significantly increased in case group with the Mean of 1.17 ± 0.25 when compared to control group Mean of 1.05 ± 0.14 with $p = 0.002$. Thus, showing a suggestive significant of serum creatinine levels in cases when compared to control group.

Conclusion

The hypertensive patients have significant alteration in serum creatinine level and are likely to developed chronic kidney disease. Thus, it is indicated to have serum creatinine estimation in daily clinical practice.

***Key Words**: creatinine, hypertension, Jaffe 's method*

Introduction

The hypertension was defined according to Fifth report of Joint National Committee for detection, evaluation and treatment of high blood pressure, as systolic blood pressure more than or equal to 140 mm of Hg and diastolic blood pressure more than or equal to 90 mm of Hg or those individuals under antihypertensive treatment [1]. The kidney, a main target of organ damage in hypertension and long-term elevations of blood pressure (BP), even within the normal range can induce early renal damage [2]. Elevated serum creatinine level is an indicator of chronic renal disease, is common and associated with inadequate treatment of high blood pressure [3]. It is seen that serum creatinine value within the reference range is also predictor of cardiovascular morbidity in patients with essential hypertension. Elevated serum creatinine values predict a poor prognosis in a patient with hypertension and mild elevation in serum creatinine level were associated with and increased all cause mortality rate in a population based samples of elderly patients and in a patients with heart failure [4]. The

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relationship between hypertension and serum creatinine level is progressive and gradual without evidence of the threshold and resembles the continuous pattern of risk for stroke and cardiovascular disease [5].

Serum creatinine in the hypertensive

Creatinine (2-amino-1-methyl-5H-imadazol-4-one) is a molecule used as a source of high-energy phosphate that can be utilized by tissues for the production of ATP. Creatine either comes from the diet or synthesized from the amino acids arginine, glycine, and methionine. This is synthesized in the kidneys and liver, although other organ systems may be involved. creatine and p-creatine are converted non-enzymatically to the metabolite creatinine, which diffuses into the blood and is excreted by the kidneys. Creatinine forms spontaneously from p-creatine [6].

Renal dysfunction in the form of raised serum creatinine is often found in hypertension, conclusive evidence that it is actually caused by elevated blood pressure in patients with non-malignant essential hypertension is lacking. However, a substantial body of evidence that renal disease can cause hypertension. Certainly, the number of patients in the large hypertension trials who developed new renal disease during follow-up is very small compared with those developing myocardial infarctions or strokes [7]. The potential benefits of earlier referral to a nephrologist of patients with high serum creatinine include identifying and treating renal failure, slowing the rate of decline associated with progressive renal insufficiency, managing the conditions and facilitating entry into dialysis programs for all patients who might benefit [8]. Elevated serum creatinine has been associated with increased mortality in hypertensive persons, the elderly, and patients of myocardial infarction or stroke where cardiovascular disease is the major cause of death. The relationship between serum creatinine concentration and the heart disease and stroke events lead to cause of mortality in a general population of middle-aged men [9].

Material and Methods

The study was carried out on total 100 subjects, which were divided into two groups-

a) Case groups (Hypertensive Subjects), n = 50
b) Control groups (Non-Hypertensive Subjects), n = 50 with no present and past family history of hypertension,

in the Departement of Biochemistry, Nobel Medical College Teaching Hospital, Biratnagar, Nepal from 21st March 2013 to 30th july2014, after Institutional Ethical Approval.

Subject with Diabetes mellitus, Cardiac patients, Alcoholic patients, Smokes, Renal failure, patient with nephropathy were excluded from the study. venous blood sample was collected and sample was centrifuged for the estimation of serum creatinine level. Sample was analysed by Kinetic test without deproteinization according to Jaffe's method [10].

Results

The present study is case control study where creatinine was estimated, compared and correlated in hypertensive case group with healthy normotensive group. This was carried out on total 100 subjects, which were divided into two groups-case group consists of 50 subjects of known hypertensive patient and control group consists of 50 subjects who were healthy normotensive.

Figure 1: Shows that the Mean age group of case study was 33.38 ± 5.33, in which the age group consisted 34% of 25-30 years, 54% where in age group of 31-40 years, followed by 12% in the range of 41-50 years. Whereas the control group Mean was 33.84 ± 5.15, consisting of 28% age

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group of 25-30 years , 58% seen in 31-40 years remaining 14% in 41-50 years age group. Suggesting the samples were age matched with p = 0.662

Figure 2: The percentage of gender studied showed that the control group with 50% male and 50% female when compared to case group male 54% and 46% female. Gender distribution was statistically similar between two groups with p = 0.689.Hence in the present study there is no significant difference in the prevalence of hypertension in between males and females.

Table 1: Shows that elevated levels of serum creatinine was more in cases, but showed only suggestive significant and hence the differences were not statistically significant with p = 0.242, since only 6% of case group had creatinine levels above normal range (< 1.4 mg/dl) whereas remaining 94% where lying in normal range. Whereas in the control group all the subjects (100%) had serum creatinine level in normal range.

Table 2: Shows the comparison of Mean values of serum creatinine in two groups studied where serum creatinine is significantly increased in case group with the Mean of 1.17 ± 0.25 when compared to control group Mean of 1.05 ± 0.14 with p = 0.002. Thus, showing a suggestive significant of serum creatinine levels in cases when compared to control group.

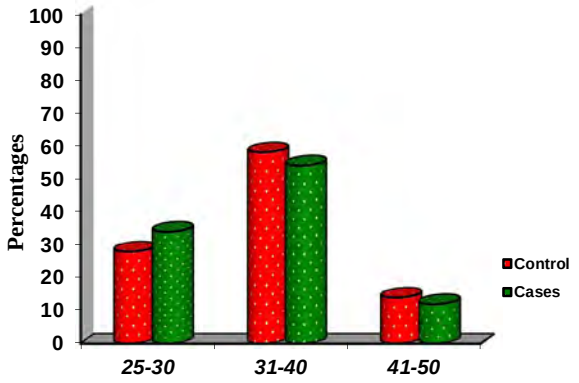
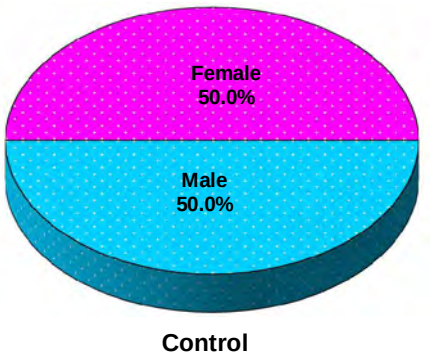


Figure 1: *Age distribution of subject studied*



Control

Figure 2: *Gender distribution of subject studied*

Table 1: Levels of serum creatinine in case and control

Serum creatinine (mg/dl)	Control		Cases	
	No	%	No	%
< 1.4 mg/dl	50	100.0	47	94.0
> 1.4 mg/dl	0	0.0	3	6.0
Total	50	100.0	50	100.0
Inference	Elevated levels of serum creatinine is more in cases with p = 0.242			

Table 2*: Mean levels of serum creatinine in two groups*

	Controls	Cases	P value
Serum creatinine	1.05 ± 0.14	1.17 ± 0.25	0.002**

Discussion

Hypertension is major health problem in developing countries. Hypertension affects nearly 25% of the adult around the world and its prevalence is predicted to increase by 60% by 2025 A.D[11]. Elevated blood pressure is major cause of development and progression of renal disease and leads to morbidity and mortality among patients with chronic renal disease[12]. In the general population, assessment of Blood pressure and creatinine level shows association which became stronger when a number of years had elapsed. These finding are consistent with the hypothesis that even minor rise in blood pressure, may lead

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to early renal damage [5]. Third National Health & Nutrition Examination Survey (NHANES III) found that serum creatinine level, an indicator of chronic renal disease was common among improper treatment of high blood pressure [13]. In this present study serum creatinine level were suggestive significance and was elevated in hypertensive patients compared to healthy individuals which is a match with previous studies [4,9].

Conclusion

Hypertension is an asymptomatic and severe disease of modern life which have been reported to have prevalence rate of 6-32%. comparing with non-hypertensive patients (control) having 100% serum creatinine levels falling in normal range (< 1.4 mg/dl), the serum creatinine levels were elevated in cases (hypertensive).

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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).

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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.

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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.

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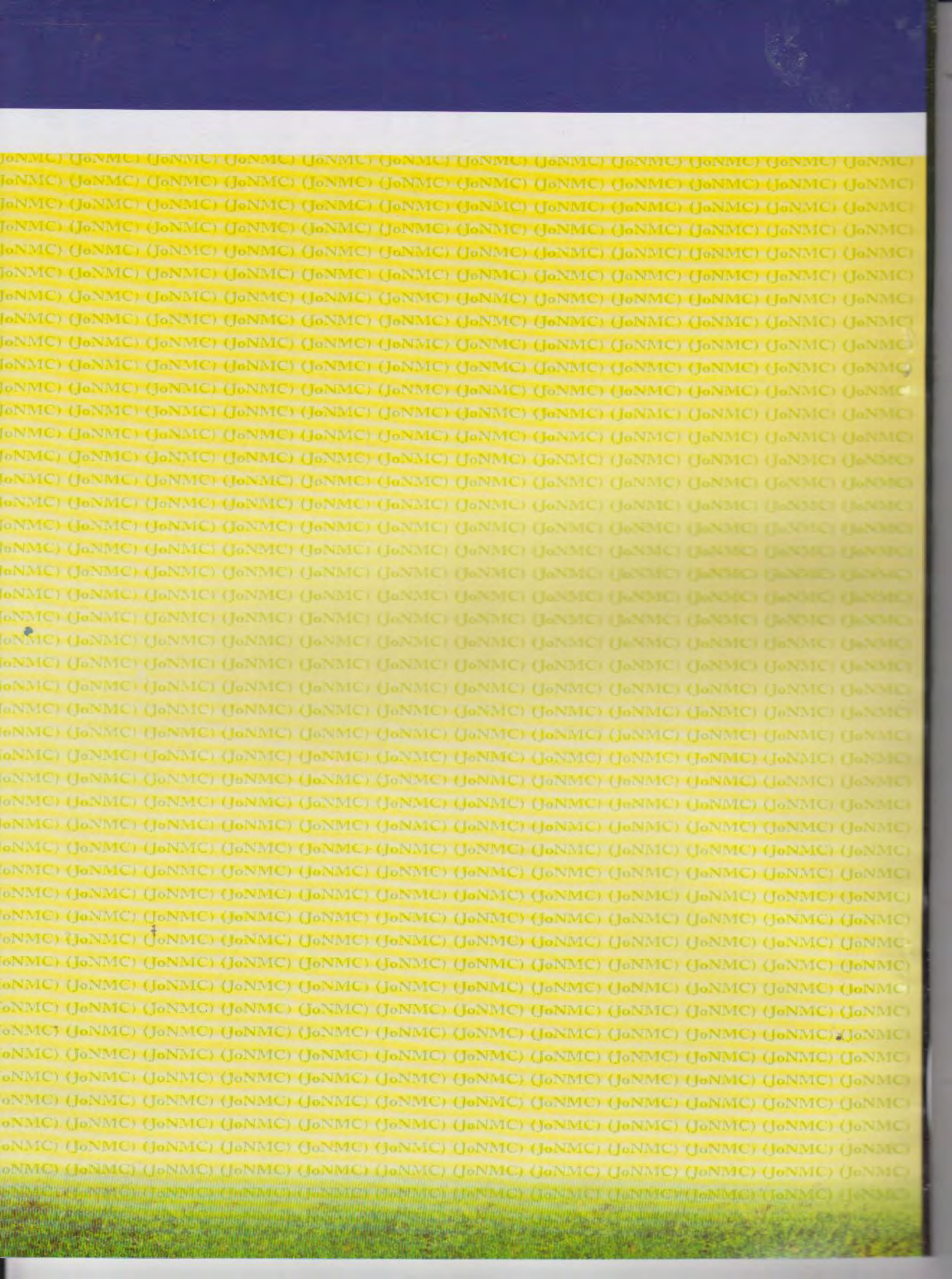
Text: Indicate references by number(s) in square brackets in line with the text. The actual authors can be referred to, but the reference number(s) must always be given. Example: '..... as demonstrated [3,6]. arnaby and Jones [8] obtained a different result ....'

List: Number the references (numbers in square brackets) in the list in the order in which they appear in the text. Examples: Reference to a journal publication:

[1] J. van der Geer, J.A.J. Hanraads, R.A. Lupton, The art of writing a scientific article, J. Sci. Commun. 163 (2010) 51–59.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