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Editorial Board

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Editorial

Malnutrition a 'Silent Emergency': It's Time To Fight

Malnutrition limits the potential of a country and is strongly associated with mortality, morbidity, reduced cognitive performance and compromised productivity among its population. Malnutrition and infection interact in a vicious cycle. The presence of one or more, easily leads to the development of the other and they have a biological synergism that causes the effects of either to be increased in the presence of other. Healthy child growth and development is the basis of human development. The impact of malnutrition is multifarious. It has an all-pervasive impact on the physical well being and socioeconomic condition of a nation. It perpetuates poverty through direct loses in productivity, indirectly loses from poor cognitive functions, poor child development and defects in schooling and loses due to increased health costs. Malnutrition due to deficiencies and to excess is strongly correlated with social and economic inequalities.

Malnutrition continues to be a growing problem in most developing countries. Poor nutrition during childhood is one important factor impending the physical and mental development of children, which ultimately propagates the vicious cycle of intergenerational malnutrition. The issue of child malnutrition is critical because its effects are not limited to the boundary of childhood but rather persist into adulthood. It silently destroys the future productivity of nations. Malnutrition increases the economic burden of a society because it leads to increased risk of death from infectious diseases[1], more severe infection and higher case fatalites[2], creating an additional psychosocial burden.

The term malnutrition refers to both undernutrition and overnutrition. Undernutrition encompasses protein-energy malnutrition and deficiency of micronutrients, including essential vitamins and minerals. Undernutrition is the underlying cause of 3.5 million deaths and 35% of the burden of diseases among children aged less than five years worldwide[3]. About 80% of undernourished children of the world live in just 20 countries in Africa, Middle East, Asia and Western Pacific; Bangladesh is one of these countries[4].

In developing countries, it is estimated that 29% of children aged less than five years (under five-children) are stunted [<-2 standard deviation (SD) height for age] or chronically undernourished. Although stunting has declined from 47% in 1980 to 29% in 1995 prevalence's are still extremely high especially in South Central Asia, which alone accounts for about half of the global problem[5].

In Bangladesh undernutrition continues to be a serious public health problem. The prevalence of malnutrition is very high in Bangladesh and is one of the leading causes of morbidity and mortality in children. Data of Bangladesh Demographic and Health Survey (BDHS) 2011 show that the prevalence of stunted children is 41%, a reduction from 51% in 2004 and 43.2% in 2007[6]. However this decline still falls short of Millennium Development Goal (MDG) 2015 target of 34% malnutrition prevalence. Currently 36% of children are born in Bangladesh with low birth weight, and are severe to moderately stunted, more than 80% of young infants and 40% of pregnant women are anaemic, around 400000 under five children have severe acute malnutrition, the most severe form of protein energy malnutrition characterized by a weight-for-height Z score of <-3 or bilateral pedal edema[7].

Bangladesh is on track to achieve MDG targets of under-five mortality rate. But not in track achieving the nutrition target of MDG 1. The annual rate of reduction in underweight required to achieve the nutrition target of MDG 1 is 1.36 percentage points, while the current rate is 1.27 percentage points per year[7]. This low rate of reduction in the prevalence of underweight makes it unlikely for the country to achieve the nutrition target of MDG 1. The major challenges to improve nutrition situation in Bangladesh warrant critical planning and significant investments in appropriate interventions, integrating both direct and indirect routes of improvements. Direct actions will first require a sound policy framework and a national plan of action, followed by scaling up of effective nutrition interventions. In addition to health and nutrition interventions, economic and social polices addressing poverty;

trade and agriculture that have been associated with rapid improvements in nutritional status, should be implemented. To reduce the rates of child mortality and morbidity and to achieve MDG targets, necessary measures are needed to inform families about the high prevalence of malnutrition among their children and to reduce the existing level of acute and chronic malnutrition.

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JALALABAD MEDICAL JOURNAL

Original Article

Post-Caesarean Surgical Site Infections: A Hospital Based Study

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ABSTRACT

This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Jalalabad Ragib-Rabeya Medical College Hospital, Sylhet during the period from July 2012 to June 2013 with a view to estimate the rate of surgical site infections (SSI) following caesarean section. Nine hundred and forty caesarean sections were done during the study period of which 154 (16.4%) were elective section and 786 (83.6%) were emergency caesarean section. The overall rate of SSI was 30 (3.19%). Among the elective caesarean section 1 (0.65%) patient developed wound infection; while 29 (3.69%) patients developed wound infection among the emergency caesarean section (p=0.046). The mean age of the patients with wound infection was 24.3±5.4 years; 20 (66.7%) patients were nullipara and 10 (33.3%) were multipara of whom 7 (23.3%) had previous caesarean sections. Duration of operation was 51±15.3 minutes. The SSI was superficial in 28 (93.3%) and deep in 2 (6.7%) cases. Wound discharge from all the 30 patients were sent for culture but only 10(33.3%) patients revealed presence of organism. The overall rate of SSI in this study was 3.19% and wound infection was higher in emergency caesarean sections than that of elective caesarean sections.

Key words: *Caesarean section, Surgical site infections.*

INTRODUCTION

Post-caesarean section surgical site infection (SSI) is a serious postoperative complication, constituting a major public health problem in terms of mortality, morbidity, prolonged hospital stays, increased antimicrobial resistance and socio-economic consequences for the patient and the healthcare services[1,2,3,4]. The reported incidence of post-caesarean section SSI varies widely. The incidence rate depends on the following: the definition adopted for SSI, the intensity of surveillance, the prevalence of risk factors for SSI in the patients group being audited, and whether the survey contains post-discharge data[2]. Among hospitals reporting to the National Nosocomial Infection Surveillance (NNIS) system, the rate of SSI after caesarean section was 2.8% to 27% depending on the risk index category[5,6,7].

Factors which affect post-caesarean section SSI rate include the maternal pre-operative medical and obstetric conditions, the type of surgical procedure, and the absence of antibiotic prophylaxis[8,9].

In a developing nation in South Asia like Bangladesh, many factors locally co-exist and contribute to sub-optimal quality of patient care and increasing the risk of health-care associated infections (HAI): irregular supply of medical consumables, limited hospital operational budgets, poor knowledge of infection control practices, irregular reparation of health services causing overload of work, and co-existence of other major health problems. Implementing active surveillance of hospital-acquired infection and monitoring of antimicrobial resistance patterns were defined as major priorities in controlling surgical site

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infection[9,10].

The rate of SSI was listed as one of the core indicators in the National Strategic Plan (NSP) for the assessment of infection control activities in a designated hospital site[9]. Within this framework, we implemented a surveillance of surgical site infections following caesarean delivery in a hospital base study in North East part of Bangladesh aiming to estimate the incidence of surgical site infections following caesarean delivery.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Jalalabad Ragib-Rabeya Medical College Hospital, Sylhet during the period from July 2012 to June 2013. All consecutive women admitted for caesarean deliveries between July 2012 and June 2013 were included. Total 940 women were enrolled in this study as cases and were studied. Clinical conditions of all the patients were evaluated pre-operatively and were monitored for a post-operative period of 30 days. Data on patient's preoperative conditions were collected by surgeons. They included demographics (age, residence), presence of diabetes, and obstetric-related variables such as parity, number of previous laparotomies, quality of amniotic fluid, duration of rupture of membranes, and duration of labour. The following surgery-related variables were also evaluated: urgency of the operation, details of anesthesia and surgical procedures, duration of the operation, volume of blood loss, and administration of antibiotics.

The inpatient observations included daily clinical evaluation (wound inspection and temperature recording). Assessments were performed by one of the investigators on 5th post-operative day (POD) and at discharge. After discharge, two assessments were conducted at the outpatient department on postoperative days 15 and 30. Diagnosis of SSIs was clinically made by the attending investigator. Patients were reimbursed for travel expenses incurred for the post-discharge assessments. Patients who failed to come back were interviewed via phone to detect any symptoms of wound infection and were requested to attend the outpatient department if required. In cases suspicion of SSI, wound discharge were collected and sent for culture sensitivity test using a standardized panel which included extended-spectrum. Data were analyzed using SPSS. Statistical significance for all tests were defined at $p<0.05$. Fisher's exact test was done to compare categorical variables.

RESULTS

Nine hundred and forty caesarean sections were done during the study period of which 154 (16.4%) were elective section and 786 (83.6%) were emergency caesarean section. Thirty patients developed post-caesarean section SSI. The overall rate of SSI was 3.19%. Among the 154 elective caesarean sections, 1 (0.65%) developed wound infection; while in 786 emergency caesarean sections it was 29 (3.69%). There was significantly higher rate of wound infections in emergency caesarean section than that of elective caesarean section ($p=0.046$).

Table-I: *Characteristic of post caesarean section patients with SSI (n=30).*

Parameter	Frequency (%)
Age (Years)	
Mean±SD	24.3±5.4
Type of caesarean section	
Elective	1 (3.3%)
Emergency	29 (96.7%)
Parity	
Primipara	20 (66.7%)
Multipara	10 (33.3%)
Previous caesarean section	
Yes	7 (23.3%)
No	23 (76.7%)
Duration of operation (Min)	
Mean±SD	51.0±15.3
Length of hospital stay (Days)	
Mean±SD	11.6±2.7

The age of the patients who developed post caesarean section wound infection ranged from 16 to 40 years with the mean age of 24.3±5.4 years. Twenty patients (66.7%) were nullipara and 10 (33.3%) were multipara of whom 7 (23.3%) had previous caesarean sections (Table-I).

Indications of caesarean section in patients with SSIs were prelabour rupture of membrane (PROM) in 10 (33.3%), obstructed labour in 8 (26.7%), foetal distress in 7 (23.3%), postdated pregnancy in 2 (6.7%) cases and breech presentation, gestational diabetes mellitus (GDM), and pre-eclampsia (PE) in 1 (3.3%) each (Table-II).

Table-II: *Indication of caesarean section (n=30).*

Indication	Frequency	Percentage
PROM	10	33.3
Obstructed labour	8	26.7

Foetal distress	7	23.3
Breech presentation	1	3.3
GDM	1	3.3
Post dated	2	6.7
Pre-eclampsia	1	3.3
Total	30	100

Duration of operation ranged from 20 to 90 minutes with the mean 51.±15.3 minutes. Seven (23.3%) operations exceeded one hour duration. Prophylactic antibiotics were administered in all (30) and continued postoperatively, only two needed blood transfusion. The SSI was superficial incisional in 28 (93.3%) and deep in 2 (6.7%) cases (Figure-1).

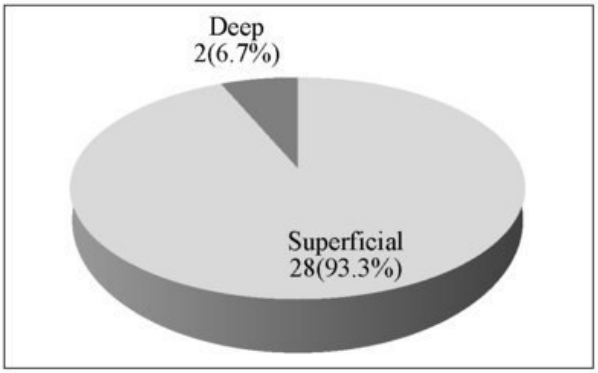

Figure-1: *Distribution of SSI by type (n=30).*

Among 30 patients with clinically-defined SSI, 10 (33.3%) were culture positive and 20 (66.7%) were negative. The organisms were *E. coli* in 5 (16.7%), *Staphylococus aureus* in 3 (10%), *Peudomonas* in 1 (3.3%) and *Klebseilla* in 1 (3.3%) (Table-III).

Table-III: *Distribution of organism in wound infection (n=30).*

Culture of Wound Swab	Frequency (%)
Growth of organism	10 (33.3%)
E. coli	5 (16.7%)
Staphylococus aureus	3 (10%)
Peudomonas	1 (3.3%)
Klebseilla	1 (3.3%)
No growth	20 (66.7%)

Length of hospital stay ranged from 8 to 20 days with the mean of 11.6±2.7 days in patients who developed SSI (Table-I).

DISCUSSION

Post caesarean section infections occur ten times than that of vaginal deliveries[11]. The most significant ones involve operative site (endomyometritis) and surgical site infections. Infections following post caesarean section vary widely in institutions from approximately 3-85% with the incidence of wound infection from 2-16%[11,12].

This study revealed post caesarean section wound infection rate of 3.19% which was comparable to other published rates. A rate of 2.8 % was reported by Mah et al[13], 4.8% by Habib[14], 6.3% by Hulton et al[15], 9.8% by Tran et al[16] and 11.2% by Johnson et al[17].

In this study there was higher rate of wound infections in emergency caesarean section than that of elective caesarean section (p=0.046). This result was evidenced from other studies[17,18].

Among the culture positive cases *E. coli* was isolated in 16.7%, *Staphylococus aureus* in 10%, *Pseudomonas* in 3.3% and *Klebsiella* in 3.3%. Similar pattern of growth of organisms were found in postoperative wound infections in surgical practice in the same institution[19]. Most of the wound swabs were culture negative may be due to prophylactic and regular use of antibiotics in all cases in the present study.

Length of hospital stay in this study ranged from 8 to 20 days with the mean of 11.6±2.7 days. Length of hospital stay was longer due to postoperative wound infection. The wide range of postoperative stay shows that even a single infected operation can adversely affect the mean length of stay and subsequently the cost of treatment.

The limitation to our post-discharge surveillance is that we assumed that those individuals who did not seek medical advice in OPD, or who were unreachable through follow up phone calls did not develop infection, which may not be the case. Subsequently, the infection rate in reality would be rather higher. However, our study sheds light on the importance of standardizing an appropriate method for post-discharge surveillance and benchmarks for further studies.

CONCLUSION

It can be concluded from this study that wound infection is more in emergency caesarean section operation that needs more pre, per and post operative care.

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Original Article

Correlation of Ultrasonographically Defined Parenchymal Patterns of the Breast with Mammographic Patterns

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ABSTRACT

This cross sectional study was carried out from June 2010 to May 2011 in the Department of Radiology and Imaging, BIRDEM selecting 48 female subjects of 25 years and above with negative mammogram. The objective was to find out the ultrasonographic correlation of parenchyma of female breast with mammographic pattern. It was observed that mammographic parenchymal pattern type N1, type P1, type P2 and type DY correlated with sonographic parenchymal pattern type P1, type P2, type P3 and type P4. Sonographic parenchymal pattern type P3 and type P4 are high risk for breast cancer. Statistical analysis showed a significant correlation between these two modalities of typing the breast parenchymal pattern. So that high risk group can be isolated for regular follow up.

Key words: *Mammogram, Ultrasonogram, Parenchymal patterns.*

INTRODUCTION

The breast is a modified sweat gland that is composed of 15 to 20 lobes. They are accessory organs of the female reproductive system. Each lies on the anterior chest wall and anterior to the pectoralis major muscle between the 2nd and 6th ribs[1].

There are different modalities of breast imaging: ultrasonography (USG), X-ray mammography, magnetic resonance imaging (MRI), positron emission mammography (PEM). USG is highly sensitive and exhibits good subject contrast between muscles, glands, fibrous tissue, blood vessels (all are hypoechoic, fat is more echogenic). USG of breast has three roles: primary screening, secondary screening (following mammography) and diagnosis of diseases. Sometimes, lesion is missed on mammography due to lack of calcifications and are sometimes obscured by surrounding and or superimposed dense tissue[2].

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Ultrasonographic parenchymal patterns of the breast can predict the tissue patterns defined mammographically[2,3]. Variations in the sonographic echogenicity of breast tissues are referred to as the parenchymal pattern of the breast. Fat is sonographically hyperechoic or echogenic and both connective and epithelial tissues are sonographically hypoechoic. The ultrasound images were assessed for both focal abnormalities and general parenchymal patterns of the breast tissue. Parenchymal patterns either by ultrasound or by mammography showed similar association with age, menopausal status and parity[4].

Wolfe[5] in 1967 classified the mammographic parenchymal patterns into four major groups depending upon the proportion of fat, ducts and densities present in the breast. It has been observed that, the radiological appearance in type N1 pattern is lucent. Here the breast is primarily composed of fat often with fine trabeculated appearance which is due to few fibrous connective tissue strands within it. In case of type P1, the radiological appearance is mainly lucent with 15-25% cone shaped density. Here the apex of the cone is

directed at the nipple or upper axillary quadrant. The lucency is due to fat and the density is due to the ducts which may be nodular or beaded in appearance. The mammogram demonstrates density occupying more than 25% of the breast parenchyma in type P2. The density is due to the prominent ductal pattern which may be linear or nodular or both. In type DY group, the classic mammographic appearance has at least 50-75% density but may involve the whole breast too. It may or may not be homogenous[6].

Novak and Bollman[7] in 1983 classified the sonographic parenchymal patterns into four major groups. In this classification, type P1 represents a fatty hypoechogenic breast with lobules in thin fibrous septa. Type P2 is a fatty breast with some dense echoes probably representing thickened periductal connective tissue. Type P3 shows some coalescence of the dense echoes with decreased lobular fat. Type P4 represents complete coalescence of the fibrous stroma resulting in a densely echogenic breast. They also postulated that type P3 and P4 (densely echogenic) breast parenchymal pattern are high risk and type P1and P2 are low risk for breast cancer[8].

As mammography has got some radiation risk so it is now a day's limited for women who are referred for mammography. Information about the distribution of parenchymal patterns in women who are either asymptomatic or not admitted for screening programme is therefore not available. To obtain such data, a risk-free method of breast examination is required that can be applied randomly. Ultrasound of the breast may be suitable for this application.

Mammography is available in the health care facilities in the big cities of our country and patients and health service providers in those cities have access to this diagnostic technique. Different studies on non-invasive diagnosis done by researchers found that ultrasonography is as good as mammography in evaluation of different breast parenchymal patterns & detection of lesions in dense breasts. Good quality ultrasonogram machines are available in almost every corner of our country moreover it is less costly & free from radiation hazards. So, this study was designed to see the correlation between USG and mammographic pattern of female breast.

MATERIALS AND METHODS

This study was carried out in the department of Radiology and Imaging of Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Dhaka from 1st June 2010 to 30th May 2011. The study population was 120 female subjects attending in the Department of Radiology and Imaging for mammogram. Forty eight cases were selected for this study according to inclusion and exclusion criteria. The subjects were selected for the study that had complete clinical information with negative mammogram. Age ranged from 26 to 40 years. Special emphasis was given on menstrual history, obstetric history, family history and history of drug intake. Clinical examination of both breasts was performed. Then they underwent mammography. Cranio-caudal and medio-lateral oblique projections were performed for each mammary gland. All the mammographic films were interpreted by a radiologist in the department following Wolfe's classification for mammographic parenchymal patterns[5]. The subjects with negative mammographic findings underwent ultrasonographic examination of both breasts. The ultrasonogram was performed by the researcher. The sonographic finding of the breast parenchyma was noted. These were confirmed by another radiologist in the department who was not informed about the mammographic typing of the subjects. The sonographic typing was done following the Novak and Bollman criteria[7]. All sonographic and mammographic findings were collected in a pre-designed structured data collection sheet and correlation between them was studied.

RESULTS

A total of 48 cases were included in the study and they were divided into three age groups. The age ranged from 26 to 40 years and the maximum number was found in the age group of 26-30 years. The mean (±SD) age was 32.6 years with standard deviation ±4.5 years (Table-I).

Table-I : *Age distribution of the study subjects (n = 48).*

Age (Years)	Number of Patients	Percentage
26-30	18	37.5
31-35	16	33.3
36-40	14	29.2

In this study, fatty breast (Lucent) was found in 8 (16.7%) cases, predominantly fatty with 15-25% density in 12 (25%) cases, heterogeneously dense with 75% density in 16 (33.3%) cases and 12 (25%) cases were extremely dense.

In age group 26-30 yrs 10.5% predominantly had fatty breast with 15-25% density, 52.6% heterogeneously dense occupying up to 75% density

and 36.8% revealed extremely dense. In age group 31-35 yrs 26.7% showed fatty breast (Lucent), 26.7% predominantly fatty with 15-25% density, 26.7% heterogeneously dense occupying upto 75% density and 20% showed extreme density. In age range 36-40 yrs group 28.6% revealed fatty breast (Lucent), 42.9% predominantly fatty with 15-25% density and 14.3% heterogeneously dense occupying up to 75% density and 14.3% showed extreme density (Table-II).

Table-II : *Age of the women with their mammographic patterns (n=48).*

Age group	N1		P1		P2		DY	
(Years)	No	%	No	%	No	%	No	%
26-30	0	0	2	10.5	10	52.6	7	36.8
31-35	4	26.7	4	26.7	4	26.7	3	20
36-40	4	28.6	6	42.9	2	14.3	2	14.3
Total	8	16.7	12	25	16	33.3	12	25

Wherever, sonographic pattern type P1 were found in 8 (16.67%), type P2 in 12 (25%), P3 in 15 (31.25%) and P4 in 13 (27.08%) cases (Table-III).

In 26-30 years age group, 2 (25%) had fatty hypoechogenic breast with lobules in thin fibrous septa, in 2 (16.7%) had fatty breasts with some dense echoes probably representing thickened periductal connective tissue, in 9 (60%) patients, breast had some coalescence of the dense echoes with decreased lobular fat and in 5 (38.6%) cases there were complete coalescence of the fibrous stroma resulting in a densely echogenic breast evaluated by ultrasonography (Table-III). In age range 31-35 years, 4 (50%) showed fatty hypoechogenic breasts with lobules in thin fibrous septa, 4 (33.3%) had fatty breast with some dense echoes probably representing thickened periductal connective tissue, in 4 (26.7%) cases some coalescence of the dense echoes with decreased labour fat and 4 (30.7%) had complete coalescence of the fibrous stroma resulting in a densely echogenic breast. In age group 36-40, 2 (25%) got fatty hypoechogenic breast with lobules in thin fibrous septa, 6 (50%) had fatty breast with some dense echoes probably representing thickened periductal connective tissue, 2 (13.3%) had some coalescence of the dense echoes with decreased lobular fat and 4 (30.7%) cases showed complete coalescence of the fibrous stroma resulting in a densely echogenic breast. The results are depicted in table-III.

Table-III: *Age of the women with their sonographic patterns (n=48).*

Age Group	P1		P2		P3		P4	
(Years)	No	%	No	%	No	%	No	%
26-30	2	25	2	16.7	9	60	5	38.6
31-35	4	50	4	33.3	4	26.7	4	30.7
36-40	2	25	6	50	2	13.3	4	30.7
Total	8	16.67	12	25	15	31.25	13	27.08

While investigating the association between mammographic and sonographic findings the following observation was found. Mammographically type N1 was found in 8 women and all of them (100%) showed sonographic type P1, mammography type P1 was reported in of 12 women and all those women (100%) showed sonographic type P2. Heterogeneously dense occupying upto 75% density (mammography type P2) was found in 16 cases, out of which sonographically showed 93.8% type P3 and 6.2% type P4. Twelve cases reported extremely dense breast (mammography type DY) and 100% showed sonographic type P4. The results are depicted in table-IV.

Table-IV: *Association between mammographic findings with sonographic evaluation (n=48).*

Mammographic Findings	Sonographic Findings							
	P1		P2		P3		P4	
	No	%	No	%	No	%	No	%
N1	8	100	0	00	0	00	0	00
P1	0	00	12	100	0	00	0	00
P2	0	00	0	00	15	93.8	1	6.2
DY	0	00	0	00	0	00	12	100
Total	8	16.67	12	25	15	31.25	13	27.08

Kappa=0.972, p value =0.001

The results of the interpreter analysis are Kappa = 0.972 with $p < 0.001$. This measure of agreement, while statistically significant, is almost perfect agreement.

DISCUSSION

In this study it was observed that there were 18 women in age group 26-30 years, out of which 10.5% had predominantly fatty breast with 15-25% density (P1), 52.6% heterogeneously dense occupying upto 75% density (P2) and 36.8% revealed extremely dense (DY) in mammographic pattern. Among 16 women of age group 31-35 years, 26.7% showed fatty breast (Lucent), 26.7% predominantly fatty with 15-25%

density, 26.7% heterogeneously dense occupying upto 75% density and 20% showed extreme density. In 14 women age range was 36-40 years; 28.6% revealed fatty breast (Lucent), 42.9% predominantly fatty with 15-25% density, 14.3% heterogeneously dense occupying upto 75% density and 14.3% showed extreme density. Flook et al[9] showed in their study that initially, the mammogram of the study samples showed 14% of the patients were N1, 18% were P1, 20% P2, and 48% DY, whereas, during 15 years at follow-up the proportions was changed to 15.5% P1, 29.5% P2, and 27.5% DY. Only 17% of N1 and 5% of P2 breasts changed (all to P1) and no patient with a P1 pattern showed change with aging. In DY group, 44% patients were changed, 22 changed to P2, 13 to P1, and nine to N1. The mean age of DY of their study patients who remained unchanged was 47 years, whilst those who changed to P1, P2 and N1 had mean ages of 55, 47, and 42 years, respectively. The investigators mentioned that the DY women, whose patterns remained unchanged, were younger (mean age 47 years) than those whose pattern changed to P2 or P1 (mean age 57 or 55 years, respectively) and more of the patients with DY breasts may yet change over the next 10 years or more[9]. The women with DY breasts who changed to N1 were younger still (mean age 42 years), suggesting that breasts with a prominent duct pattern behave differently from the type N1 breast. Kaizer et al[10] showed that the youngest age group (21-30 years) 92% had one of the two more densely echogenic breast patterns and 68% of them had pattern 4. Similarly, of the 122 women aged 31-40 years, 77% had densely echogenic breasts, 58.2% displayed pattern 4. Conversely, of the 44 patients aged 61-70 years, 75% had one of the two relatively fatty tissue patterns, as had eight of 11 women (72.7%) over 70 years of age. The correlation between ultrasound pattern and age is therefore inversed ($P< 0.001$).

All the four sonographic patterns were found in this study population. Among them 16.67% showed fatty hypoechogenic breast with lobules in thin fibrous septa (P1), 25% showed fatty breast with some dense echoes probably representing thickened periductal connective tissue (P2), 31.25% showed some coalescence of the dense echoes with decreased lobular fat (P3) and 27.08% Complete coalescence of the fibrous stroma resulting in a densely echogenic breast (P4). Kaizer et al. mentioned that ultrasound pattern showed significant variation with menopausal status. They studied a total of 294 pre-menopausal women and observed that 74.5% had a dense breast ultrasonographically and 48.6% demonstrated breast pattern 4[10].

In the current series, 18 women of 26 to 30 age group, 25% had fatty hypoechogenic breast with lobules in thin fibrous septa, 16.7% had fatty breast with some dense echoes probably representing thickened periductal connective tissue, 60% had some coalescence of the dense echoes with decreased lobular fat and 38.6% complete coalescence of the fibrous stroma resulting in a densely echogenic breast evaluated by ultrasonography. There were 16 women in 31-35 years age, among them 50% showed fatty hypoechogenic breast with lobules in thin fibrous septa, 33.3% fatty breast with some dense echoes probably representing thickened periductal connective tissue, 26.7% some coalescence of the dense echoes with decreased lobular fat and 30.7% complete coalescence of the fibrous stroma resulting in a densely echogenic breast. In 14 women of age group 36-40 years; 25% had fatty hypoechogenic breast with lobules in thin fibrous septa, 50% fatty breast with some dense echoes probably representing thickened periductal connective tissue, 13.3% some coalescence of the dense echoes with decreased lobular fat and 30.7% showed complete coalescence of the fibrous stroma resulting in a densely echogenic breast.

In this study, it was observed that mammographic type N1 was found in 8 women and all those cases showed sonographic type P1. In 12 women, mammographic type P1 and sonographic type P2 was found. Mammographic type P2 was seen in 16 women, out of which 93.8% showed P3 and 6.2% showed P4 in sonographic pattern. Rest 12 women reported extremely dense breast (mammographic type P3) and 100% showed sonographic pattern P4. Kaizer et al[10] showed similar correlation between these two parameters, which was highly significant ($P<0.001$). Of particular note is the striking correlation at the extremes. A total of 37 women with a normal mammogram and 86.1% displayed a weakly echogenic breast pattern. Similarly 86.7% of 120 women with greater than 75% replacement by dysplasia on mammography also had a densely echogenic breast on ultrasound.

Ultrasonographic parenchymal patterns of the breast can predict the tissue patterns defined mammographically and may therefore be useful as a marker of breast cancer risk reported by Kaizer et al[10]. The same study also stated that parenchymal patterns defined either by ultrasound or mammography showed similar associations with age, menopausal status and parity, and these associations resemble those reported by others. It has therefore been possible to obtain

information about the parenchymal pattern only in women who are referred for mammographic examination or who attend screening centers. To obtain such data, a risk-free method of breast examination is required that can be applied to randomly selected members of the population. Ultrasound of the breast may be suitable for this application. Furthermore, real-time ultrasound imaging if capable of defining similar breast parenchymal patterns, would add a necessary dimension of portability that would facilitate the comparison of ultrasonographic breast tissue patterns in populations at different risks. We are now examining the correlation between mammographic pattern and the pattern obtained with real-time ultrasound.

CONCLUSION

This study was performed to find out the correlation between ultrasonographically assessed female breast parenchymal pattern and mammographic parenchymal pattern. In this study a significant correlation was found between ultrasonographically assessed female breast parenchymal pattern and mammographic parenchymal pattern. While performing ultrasonography of breast, radiologist may give emphasis on breast parenchymal pattern so that ultrasonography of breast can be a reliable option for isolating high risk group in regular cost-effective follow up.

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Original Article

Bacteria Isolated from Bloodstream Infections by VersaTREK Automated Blood Culture System and Antimicrobial Susceptibility Pattern of Isolates

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ABSTRACT

A bloodstream infection (BSI) is a life-threatening condition. A better understanding of the spectrum of pathogens causing BSI is crucial for prompt management of patients, as antimicrobial therapy greatly influences the outcome of patients with BSI. So, the present study was undertaken to rapidly identify the blood culture isolates by the new VersaTREK® (TREK Diagnostic Systems, Cleveland, Ohio, USA) automated continuously monitoring blood culture system and to study the antimicrobial susceptibility pattern of blood culture isolates in Sylhet city. The patients were mainly from the intensive care unit of Ibn Sina Hospital and different clinics in Sylhet city. Bacteria was identified and isolated. Antibiogram was performed on all positive samples. Average, lowest and highest detection time of bacterial growth was 18 hours, 4 hours and 52 hours respectively. Over 99% positive and false-positive samples gave signal within 27 hours and no isolates were obtained beyond day 3 of incubation. Out of 1252 samples 169 (13.5%) were positive. Among the isolated bacterial pathogens, Staphylococcus aureus was found to be the predominant isolate (42.6%) followed by Salmonella typhi (17.16%) and Klebsiella (13.02%). Linezolid and tetracycline showed the highest sensitivity (98.61%, and 97.22% respectively) against staphylococcus aureus whereas most effective antibiotics were found to be colistin (100%) followed by cefipime (89.65%) against Salmonella typhi. The present study showed that most of the blood culture isolates, whether gram positive or gram negative were resistant to ceftriaxone, cephalexin, cefixim and azythromycin which are commonly prescribed. Most of the gram positive bacteria were resistant to oxacillin. The antibiotic resistance in blood culture isolates emphasizes the importance of rational and judicious use of antibiotics according to the antibiotic resistance pattern of that institution.

Key words: *Blood culture, Automated continuously monitoring blood culture system, Antimicrobial sensitivity.*

INTRODUCTION

The detection of bacteraemia is crucial for early and appropriate antimicrobial therapy. Blood cultures are still considered to be the 'gold standard' for the detection of microbial pathogens related to bacteraemia and sepsis. Despite newer molecular techniques being applied in diagnostic microbiology, recent analyses confirm the use of automated blood culture systems as the primary choice for detection of pathogens from blood specimens[1,2]. This is because, results are generated rapidly compared to manual blood culture systems and antimicrobial susceptibility testing can also be performed which is a limitation of molecular techniques.

There are currently a wide variety of blood culture systems available. The continuous monitoring blood culture systems are considered an advance in clinical microbiology and are the current preferred platform for blood culture testing worldwide. The three main commercially available systems are the BacT/ALERT blood culture system (bioMérieux, Durham, N.C), Bactec 9000 series (BD Microbiology, Cockeysville, MD) and the VersaTREK system (TREK Diagnostic Systems, Cleveland, Ohio). All three systems have expandable detection units with self-contained incubation chambers and minimal bottle manipulation as agitation is achieved via rocking or vortrexing. The principle of detection of these systems is based on the

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release of CO_2 by the metabolic process of microorganism. The automated blood culture systems differ to some extent in the method used to detect microbial growth.

The new VersaTREK® automated continuously monitoring blood culture system can be adapted to accommodate small or big volumes of blood culture bottles in its 96 bottle capacity. The system differs from the other systems in that the aerobic bottles are vortrexes with a magnetic stir bar to enhance oxygenation of the broth. The media is suitable for all patient populations. The VersaTREK system is based on monitoring pressure changes in the bottle headspace due to bacterial metabolism and these changes are measured every 24 minutes according to the VersaTREK instrument specifications. Both gas consumption and production are monitored by a pressure sensor. As a result other gasses e.g. O_2 and H_2 are also detected. This system is neither limited by organisms that produce low CO_2 concentrations as it detects any gas produced or consumed by microorganisms nor by a high amount of white blood cells.

Human blood contains various factors or substances that can interfere with the detection of micro-organisms e.g. host serum factors, antimicrobial agents. Therefore inoculated blood must be diluted to a point where these substances will have a minimal inhibitory effect. The required dilutional factor has been evaluated before and up to 10 times dilution has been recommended[3,4]. However the blood-broth ratio required for various systems will differ according to manufacturer's instruction. The VersaTREK is adapted to accommodate smaller volumes from as little as 0.1 ml to 10 ml, however the manufacture still recommends using 10 ml to achieve a 1:9 blood-broth ratio in the 80 ml bottle. Inoculating at dilutions higher than 1:10 may be associated with a lower yield due to the decreased overall volume cultured[5].

The VersaTREK system offers media in two forms for both aerobic and anaerobic isolation, the 40 ml direct draw format which can accommodate 5 ml and an 80 ml format which can accommodate 10 ml. With the direct draw format the blood-broth ratio achieved is 1:8. Samuel et al compared the two media types with simulated blood cultures with clinically relevant microorganisms and found no negative impact on time to positivity (TTP) with the smaller volume bottles[6]. One significant advantage with the use of automated blood culture systems is that continuously monitor microbial growth throughout the incubation period for early detection of positive cultures. More than 90% of all positive blood cultures are detected within the first 48 hrs of incubation[7,8].

A bloodstream infection (BSI) is a life-threatening condition that may be complicated by septic shock and death. BSI due to bacteria is an important cause of morbidity and mortality. Mortality due to septic shock can be as high as 60% despite treatment[9]. A better understanding of the spectrum of pathogens causing BSI is crucial for prompt management of patients, as antimicrobial therapy greatly influences the outcome of patients with BSI. So, the present study was undertaken to rapidly identify the blood culture isolates by the new VersaTREK® automated continuously monitoring blood culture system in Sylhet city and to study the antimicrobial susceptibility pattern of blood culture isolates for initiation of early and appropriate antimicrobial therapy.

MATERIALS AND METHODS

During the period from July 2011 to June 2012, 1252 blood samples from adult and children (below 18 years) were subjected to automated blood culture system at Ibn Sina Microbiology Laboratory, Sylhet. The patients were mainly from the intensive care unit of Ibn Sina Hospital and different clinics in Sylhet city. Out of 1252 samples 374 were double and 878 were single. Venous blood was collected from both adults and children suspected of having a blood stream infection, irrespective of antibiotics administration. Skin disinfection was performed prior to collection with 70% alcohol and allowed to air dry[10]. Quantity of blood sample from children and adult was 0.5-5 ml[11]. All samples were collected in VersaTREK REDOX 1® 40ml (aerobic) bottle and received within normal working hours and incubated for 72 hours. According to manufacturer's instructions, any sample that did not generate any signal within 72 hours of incubation was interpreted as no growth (negative).

The preliminary signal of bacterial growth in VersaTREK REDOX 1® (aerobic) 40 ml bottle was detected and displayed on the monitor of VersaTREK system mentioning the detection time (TTD). Specific identification of all culture positive samples were accomplished by sub-culture and inoculating in non-selective agar plates, blood agar as well as a selective and differential plate, MacConkey agar, triple sugar iron agar (TSI), chocolate agar and mannitol salt agar media (Hi Media. India). Inoculated blood agar, MacConkeys agar, TSI and mannitol salt agar plates were incubated aerobically at 37^0C. The chocolate agar plates were incubated at 37^0C under 5-10% CO_2 condition (Candle jar) and examined after 18-24 hours

of incubation. Gram's stain, coagulase test, oxidase test, battery of biochemical and serological test were done for final identification[12]. A false positive signal was defined as a true signal emitted from the instrument, but no organisms were seen on the gram stain and no growth was obtained after 48 hrs extended incubation.

For antimicrobial susceptibility, Kirby-Bauer disc diffusion tests were performed for all the isolates according to the method recommended by the Clinical and Laboratory Standard Institute[13]. Antibiotic disc (Hi Media) was applied to each plate, and after incubation at 37^0C for 24 hours zone sizes were measured and interpreted accordingly.

The VersaTREK® System

Vortrexing

VersaTREK REDOX 1® (aerobic) 40 ml bottle

RESULTS

Table-I shows the results of culture. Out of 1252 sample, 169 (13.5%) were positive, 53 (4.23%) were false-positive and 1030 (82.27%) were negative. Among 169 positive samples 145 (85.8%) were adult and 24 (14.2%) were children (Table-II). Among the isolated bacterial pathogens, *Staphylococcus aureus* was the most common (42.6%) followed by *Salmonella typhi* (17.16%), *Klebsiella*, *Pseudomonas aeruginosa*, *Escherichia coli* and coagulase-negative staphylococcus (CONS) (Table-III). Most common contaminant was *Staphylococcus epidermidis*. Average, lowest and highest detection time of bacterial growth was 18 hours, 4 hours and 52 hours respectively. Over 99% positive and false-positive samples gave signal within 27 hours and no isolates were obtained beyond day 3 of incubation. 57 (15.24%) positive growth revealed from 374 double sample blood specimens and 112 (12.76%) from 878 single sample blood specimens (Table-IV).

Table-I: *Rate of culture positive, false-positive and negative samples (n=1252).*

Results of Culture	Number	Percentage
Growth of bacteria (Positive)	169	13.5
False positive	53	4.23
No growth (Negative)	1030	82.27
Total	1252	100

Table-II: *Distribution of the positive specimen among children and adult (n =169).*

Adult/Child	Number	Percentage
Adult	145	85.8
Children (Age below 18 years)	24	14.2
Total	169	100

Table-III: *Distribution of isolated bacterial pathogens (n=169.)*

Bacteria	Number	Percentage
Staphylococcus aureus	72	42.6
Salmonella typhi	29	17.16
Klebsiella	22	13.02
Pseudomonas aeruginosa	20	11.83
Escherichia coli	13	7.7
Coagulase-negative staphylococcus	7	4.14
Streptococcus spp	6	3.55
Total	169	100

Table-IV: *Isolation rate of bacteria in double vs. single blood sample (n=169).*

Blood Sample	No of Sample	No of Isolated Bacteria	Percentage
Double	374	57	15.24
Single	878	112	12.76

Table-V: *Antimicrobial sensitivity pattern of gram positive isolates (n=85).*

Antimicrobial Agents	Organism		
	***Staphylococcus aureus* (n=72) No (%)**	**Coagulase Negative Staphylococcus (CONS) (n=7) No (%)**	***Streptococcus* (n=6) No (%)**
Gentamicin	62 (86.11)	6 (85.71)	4 (66.66)
Amikacin	67 (93.05)	6 (85.71)	4 (66.66)
Cotrimoxazole	33 (45.83)	5 (71.42)	3 (50)
Tetracycline	70 (97.22)	7 (100)	6 (100)
Ciprofloxacin	58 (80.55)	4 (57.14)	5 (83.33)
Chloramphenicol	63 (87.5)	7 (100)	6 (100)
Linezolid	71 (98.61)	7 (100)	6 (100)
Vancomycin	64 (88.88)	5 (71.42)	4 (66.66)
Imipenem	63 (87.5)	3 (42.85)	5 (83.33)
Cefixim	30 (41.66)	1 (14.28)	3 (50)
Netilmicin	67 (93.05)	7 (100)	5 (83.33)
Oxacilline	16 (22.22)	2 (28.57)	2 (33.33)
Cephalexin	38 (52.77)	4 (57.14)	3 (50)

Antibiotic susceptibility patterns of the isolated organisms are shown in Table-V and VI. Gram-positive bacteria show more sensitivity towards linezolid, tetracycline, chlorampenicol, netilmycin, amikacin and vancomycin. Most of them were resistant to oxacillin, cefixim and cephalexin (Table-V). Colistin, cefipime, imipenem, levofloxacin, ciprofloxacin and amikacin were more sensitive to gram-negative bacteria whereas ceftriaxone, cephalexin, cefixim, azythromycin showed low sensitivity (Table-VI).

Table-VI: *Antimicrobial sensitivity pattern of gram negative isolates (n=84).*

Antimicrobial Agents	Organism			
	Salmonella typhi **(n=29) No (%)**	***Klebsiella spp*** **(n=22) No (%)**	***Pseudomonas aeruginosa*** **(n=20) No (%)**	***Escherichia coli*** **(n=13) No (%)**
Gentamicin	21 (72.41)	17 (77.27)	17 (85)	6 (46.15)
Amikacin	25 (86.2)	17 (77.27)	19 (95)	10 (76.92)
Cotrimoxazole	17 (58.62)	8 (36.36)	2 (10)	7 (53.84)
Levofloxacin	25 (86.2)	19 (86.36)	18 (90)	9 (69.23)
Ciprofloxacin	25 (86.2)	13 (59.09)	17 (85)	7 (53.84)
Chloramphenicol	22 (75.86)	16 (72.72)	13 (65)	11 (84.61)
Ceftriaxone	20 (68.96)	4 (18.18)	11 (55)	5 (38.46)
Cefuroxime	16 (55.17)	9 (40.9)	4 (20)	8 (61.53)
Cefipime	26 (89.65)	21 (95.45)	15 (75)	10 (76.92)
Imipenem	25 (86.2)	20 (90.9)	17 (85)	12 (92.3)
Cefixim	14 (48.27)	5 (22.72)	6 (30)	3 (23.7)
Azythromycin	17 (58.62)	13 (59.09)	11 (55)	5 (38.46)
Colistin	29 (100)	20 (90.9)	20 (75)	11 (84.61)
Cephalexin	11 (37.93)	8 (36.36)	1 (5)	1 (7.69)

DISCUSSION

Bloodstream infections range from transient bacteraemia to septic shock. Early identification of causative bacteria of bloodstream infections (BSI) can avoid spreading of bacteria into major organs. Early commencement of a sensitive antibiotic is decisive in management of patients with BSI. The initiation of such therapy is based on knowledge of the likely pathogens and their usual antimicrobial susceptibility pattern. In the present study blood culture positivity was seen in 169 (13.5%) cases which correlate with the study done by Wadud et al[14] (14.38%), whereas Shaleh[15] and Saha et al[16] have reported 11.6% and 9.88% respectively. In Bangladesh, variation might be due to the fact that most of the patients are given antibiotics before they come to the tertiary care hospital & other reason is that in most of the cases self medication is very common as the medicines are available at the counter. Higher isolation rate (20.02 %) was reported from study done in India[17].

This study showed that isolation rate of gram positive bacteria was higher (50.29%) than gram negative bacteria (49.7%). This observation is in accordance with other studies conducted by Usha Arora in India[17], where they found gram positive bacteria 52.67% and gram negative bacteria 47.33%, Karki et al[18] in Nepal found, gram positive bacteria 66.2% and gram negative bacteria 33.8%, but in most of the studies gram negative organisms have taken over the gram positive organisms as reported by Atul Garg[19] et al, 67.5% were gram negative bacteria and 32.5% were gram positive bacteria.

In the present study, among gram positive organisms, most commonly isolated bacteria was *Staph aureus* (42.6%) followed by coagulase negative staphylococci (CONS), *Streptococcus*. This observation is consistent with the findings of Usha Arora et al[17], their study showed that *Staph aureus* was the predominant organism followed by CONS. Similar findings reported by Karki et al[18].

In this study *Salmonella typhi* was isolated from 29 (17.16%) cases which is much lower than that reported by Wadud et al (66.62%)[14]. This difference may be due to the fact that enteric fever is prevalent in Dhaka city due to improper sanitation system leading to gross faecal contamination of consumable water. The present study found higher (85.8%) culture positive rate in adult samples than that of children that did not correlate with what reported by Wadud et al (63.51%)[14].

Average, lowest and highest detection time of bacterial growth was 18 hours, 4 hours and 52 hours respectively. This observation is in accordance with that reported by Wadud et al[14].

In the present study, among the antibiotics used for susceptibility testing for gram positive isolates, linezolid, tetracycline, chlorampenicol, netilmycin, amikacin and vancomycin were more sensitive. Linezolid, tetracycline, chlorampenicol, showed highest sensitivity (100%) against CONS and

Streptococcus followed by 98.61%, 97.22% and 87.5% respectively against *Staphylococcus aureus*. This correlates with study conducted by Atul Garg et al[19].

In the current study among the antibiotics used for susceptibility testing for gram negative isolates, in case of *Salmonella typhi*, most effective antibiotics were found to be colistin (100%) followed by cefipime (89.65%). *Salmonella typhi* showed similar sensitivity (86.2%) towards imipenem, levofloxacin, ciprofloxacin and amikacin. *Salmonella typhi* was less sensitive to commonly used antibiotics e.g. ceftriaxone (68.96%), azythromycin (58.62%) cefixim (48.27%) in this study whereas Wadud reported ceftriaxone ((99.79%), cefixim (98.94%) and azithromycin (99.58%) resistant to *Salmonella typhi*[14]. *Pseudomonas aeruginosa* were more sensitive to amikacin (95%), levofloxacin (90%), 85% to both gentamicin and ciprofloxacin in this study. This observation is in concordance with that reported by Wadud et al as amikacin and gentamicin (58.14), ciprofloxacin (55.81%) sensitive to *Pseudomonas aeruginosa*[14].

CONCLUSION

The present study showed that most of the blood culture isolates, whether gram positive or gram negative were multidrug resistant. The rise in antibiotic resistance in blood culture isolates emphasizes the importance of rational and judicious use of antibiotics according to the antibiotic resistance pattern of that institution.

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JALALABAD MEDICAL JOURNAL

Original Article

Comparative Study between Conservative and Operative Treatment by PLIF of Grade-II Spondylolisthesis

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ABSTRACT

This was a prospective comparative study conducted in the Department of Orthopedics, Sylhet MAG Osmani Medical College Hospital, Sylhet during January 2011 to December 2012 with a view to compare the outcome of operative and conservative treatment for grade-II spondylolisthesis. For this purpose 32 patients with grade-II spondylolisthesis were selected and randomized to operative group [11 (68.8%) male and 5 (31.2%) female; mean age, 47.8±10 years] and conservative group [9 (56.2%) male and 7 (43.8%) female; mean age, 46.3±9.1 years]. Both groups were similar in age (p=0.791) and sex (p=0.465). The mean low back pain and radiation pain were significantly reduced in operative group (p<0.001 and p<0.001 respectively) and in conservative group (p=0.011 and p=0.001 respectively); but reduction was more marked in operative group (p<0.001 and p<0.001 respectively). In operative group, 2 (12.5%) patients developed complications. Length of hospital stay was significantly longer in operative group than that of conservative group (p<0.001). In operative group, outcome was excellent in 43.8%, good in 43.8%, poor in 6.2% and fair in 6.2% patients; while in conservative group, outcome was good in 12.5%, fair in 50% and poor in 37.5% cases (p<0.001). Final outcome was satisfactory in 14 (87.5%) and unsatisfactory in 2 (12.5%) patients of operative group; while it was 2 (12.5%) and 14 (87.5%) respectively in conservative group (p<0.001). It can be concluded from the study that, operative treatment such as posterior lumbar interbody fusion (PLIF) is a better option for achieving satisfactory outcome in grade-II spondylolisthesis.

Key words: *PLIF, Spondylolisthesis, Outcome.*

INTRODUCTION

Spondylolisthesis does not need treatment unless symptomatic. Backache alone without any neurological symptoms comes off and on, due to over-exertion. Long traveling needs only muscle developing exercises for both flexor and extensor group. Over the years these attacks also reduce due to stabilization occurring naturally by osteophytes and fibrous tissue. Later on they may present with symptoms of spinal stenosis[1].

Treatment of grade-II of spondylolisthesis is both conservative and operative. Conservative management includes bed rest, restriction of the activities, anti-inflammatory medication, epidural analgesia, physiotherapy (flexion exercise after pain relief, hot and cold compression) and spinal bracing.

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Indication of surgery in grade-II spondylolisthesis includes hamstring tightness, persistent abnormal gait or postural deformities unrelieved by conservative treatment for at least 1 year, progressive neurological deficit, progressive slip beyond 25-50% even when asymptomatic, gradual decrease in claudication distance.

Surgery for grade-II spondylolisthesis is posterior decompression, reduction and stabilization along bone graft. This could be done by different options such as posterior lumbar interbody fusion (PLIF), anterior lumbar interbody fusion, transforaminal lumbar interbody fusion, posterolateral in situ fusion[2]. The choice of lumbar fusion technique must be individualized based on the clinical needs of each patient, the surgical outcome for each procedure based on the surgical techniques and the individual skill of the surgeon. The advantage of PLIF over anterior lumbar interbody fusion (ALIF) is the avoidance of

vascular and reproductive system complications that can occur with anterior lumbar surgery[3].

Several studies have compared between surgical and non-surgical treatment for degenerative spondylolisthesis; surgically treated group showed substantially greater improvement in pain and function[4,5].

PLIF is done in Bangladesh as the treatment of spondylolisthesis but no study is carried out to compare the outcome of operative versus conservative treatment in spondylolisthesis grade-II. So, this study was designed to compare the outcome of operative treatment and conservative treatment in grade-II spondylolisthesis.

MATERIALS AND METHODS

This prospective comparative study was conducted in the Department of Orthopaedics, Sylhet MAG Osmani Medical College Hospital, Sylhet during the period from 1st January 2011 to 31st December 2012. Thirty two admitted patients with spondylolisthesis grade-II fulfilling the selection criteria were taken as study sample. Inclusion criteria were grade-II spondylolisthesis in L4 over L5; or L5 over S1, aged 18 to 60 years irrespective of sex having symptoms. Spondylolisthesis in children, asymptomatic grade-II cases, spondylolisthesis with associated infection, malignancy, medically unfit for operation and pregnant woman were excluded.

After admission all the patients were evaluated by detailed history and clinical examinations. Diagnosis of spondylolisthesis with grading was confirmed by X-ray of lumbosacral spine.

Sample was divided randomly into group A and group B by lottery, each consisting 16 patients. The patients of group A were treated with PLIF and group B were selected for conservative treatment in the form of bed rest, restriction of activities, anti-inflammatory medication, physiotherapy and spinal bracing.

After preoperative assessment fitness for general anaesthesia and antibiotic prophylaxis (cefuroxime 1.5 gm IV half an hour before induction) PLIF was done in all cases of group A. After operation cefuroxime 750 mg was given for two additional doses 8 hours apart followed by oral cefuroxime 500 mg 12 hourly for 10 days. Stitches were removed on 10th postoperative day. Follow up of all patients of group A and group B were done at 6 weeks, 12 weeks, 6 months and 1 year. Pain was assessed using visual analogue scale. Sensory function, motor function, radiological assessment and any complication were recorded. In final follow up visit functional ability was assessed using Lin's criteria and graded as excellent, good, fair and poor[6].

Data were processed and analyzed with the help of SPSS. Quantitative data were analyzed by mean and standard deviation; and comparison was done between two groups by unpaired t-test. Qualitative data were analyzed by rate, ratio and percentage; and comparison was done between two groups by Chi-Square (χ^2) test.

RESULTS

Among 32 patients the age of the patient ranged from 31 to 65 years with the mean age of 47.3 (±9.1) years. The mean age of the patients in both groups was almost identical (47.8±10 years vs 46.9±8.4 years; t=0.268; p=0.791) [Table-I]. Out of 32 patients, 20 (62.5%) patients were male and 12 (37.5%) patients were female with a ratio of 1.67:1. The sex of the patients in group A and group B did not show any statistically significant difference [χ^2=0.533; p=0.465 (Table-I)]. Regarding the involvement of level of spondylolisthesis, L4 over L5 was involved in 23 (71.9%) and L5 over S1 was involved in 9 (28.1%) patients. There was no significant difference in level of olisthesis between two groups [2=1.391; p=0.238 (Table-I)].

Table-I: *Distribution of the patients by baseline characteristics.*

Parameter	Group A (n=16)	Group B (n=16)	Total (n=32)	p value
Age (Years)				
Mean ±SD	47.8±10	46.9±8.4	47.3±9.1	†p=0.791
Sex				
Male	11 (68.8)	9 (56.2)	20 (62.5)	*p=0.465
Female	5 (31.2)	7 (43.8)	12 (37.5)	
Level of Olisthesis				
L4/ L5	13 (81.2)	10 (62.5)	23 (71.9)	*p=0.238
L5/S1	3 (18.8)	6 (37.5)	9 (28.1)	

Figure in the parenthesis indicates corresponding percentage. Mean was expressed as mean ± standard deviation. *Chi-Square (χ^2) test and †Unpaired t test were employed to analyze the data.

The mean low back pain did not differ between the groups before treatment (7.6±1.2 vs 7.1±1.1; t=1.439; p=0.161). The mean low back pain was significantly reduced after treatment in group A (7.6±1.2 vs 1.3±1.5; t=12.089; p<0.001) and group B (7.1±1.1 vs 5.5±2.1; t=2.890; p=0.011); but reduction was more marked in group A (1.3±1.5 vs 5.5±2.1; t=-6.572; p<0.001) [Table-II].

Table-II: *Distribution of patients by low back pain.*

Study Group	Before Treatment	After Treatment	p value
Group A (n=16)	7.6±1.2	1.3±1.5	†p<0.01
Group B (n=16)	7.1±1.1	5.5±2.1	†p=0.01
p value	*p=0.161	*p<0.001	

Data were expressed as mean ± standard deviation. *Unpaired 't' test and †Paired 't' test were employed to analyze the data.

Table-III: *Distribution of patients by radiation pain.*

Study Group	Before Treatment	After Treatment	*p value
Group A (n=16)	7.3±1	1.3±1.4	p<0.001
Group B (n=16)	6.8±0.7	4.1±1.9	p=0.001
***p value**	p=0.076	p=0.001	

Data were expressed as mean ± standard deviation *Unpaired't' test and † Paired't' test were employed to analyze the data.

Table-IV: *Distribution of patients by length of hospital stay.*

Hospital Stay (Days)	Group A (n=16)	Group B (n=16)	p value
Mean	14.7	6.7	
Standard Deviation	±1.7	±1.1	*p<0.001
Range	14-21	5-8	

Data were expressed as mean ± standard deviation. *Unpaired 't' test was employed to analyze the data.

The mean radiation pain did not differ between the groups before treatment (7.3±1 vs 6.8±0.7; t=1.840; p=0.076). The mean radiation pain was significantly reduced after treatment in both group A (7.3±1 vs 1.3±1.4; t=12.031; p<0.001) and group B (6.8±0.7 vs 4.1±1.9; t=4.093; p=0.001); but reduction was more marked in group A (1.3±1.4 vs 4.1±1.9; t=-5.728; p<0.001) [Table-III].

Length of hospital stay was significantly longer in group A than that of group B (14.7±1.7 days vs 6.7±1.1 days; t=15.630; p<0.001) [Table-IV].

Among 16 patients of operative group (Group A), 2 (12.5%) developed complications of which 1 (6.2%) developed superficial wound infection and 1 (6.2%) developed implant failure (Figure-1).

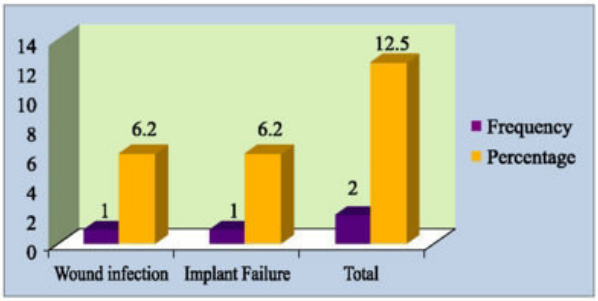

Figure-1: *Postoperative complications, [(Group A), n=16].*

In group A, 7 (43.8%) patients had excellent, 7 (43.8%) had good; 1 (6.2%) had fair and 1 (6.2%) had poor outcome; while in group B, 2 (12.5%) patients had good, 8 (50%) had fair and 6 (37.5%) had poor outcome. Difference between two groups was statistically significant (χ^2)=18.794; p<0.001) [Table-V].

In group A, satisfactory result was found in 14 (87.5%) and unsatisfactory result was found in 2 (12.5%); while in group B, satisfactory result was found in 2 (12.5%) and unsatisfactory result was found in 14 (87.5%) patients. Difference between two groups was statistically significant (χ^2=18.000; p<0.001) [Table-V].

Table-V: *Distribution of patients by outcome.*

Outcome	Group A (n=16) No (%)	Group B (n=16) No (%)	p value
Functional Outcome			
Excellent	7 (43.8)	0 (00)	
Good	7 (43.8)	2 (12.5)	*p<0.001
Fair	1 (6.2)	8 (50)	
Poor	1 (6.2)	6 (37.5)	
Final Outcome			
Satisfactory	14 (87.5)	2 (12.5)	*p<0.001
Unsatisfactory	2 (12.5)	14 (87.5)	

*Chi-Square (χ^2) test was employed to analyze the data.

DISCUSSION

In this study the age of the patient ranged from 31 to 65 years with the mean age of 47.3 (±9.1) years. This result was supported by Yehya[2], that the age of the patients with spondylolisthesis was 42.3±7.5 years. This result was also supported by the study of Awwal[7] that the mean age of the patients was 53.75 years. But other study showed higher mean age of the patients with spondylolisthesis[4,5].

In the current study 20 (62.5%) patients were male and 12 (37.5%) patients were female with a ratio of 1.67:1. This result was supported by the study of Awwal[7] that 13 (65%) patients were male and 7 (35%) patient were female. The male female ratio was 2:1. But female preponderance of spondylolisthesis was reported in other studies[2,4,5].

Regarding the level of olisthesis the present study showed that L4 over L5 was involved in 23 (71.9%) and L5 over S1 was involved in 9 (28.1%) patients. Higher incidence of olisthesis in L4 over L5 was reported in other studies[2,4,7].

In the present study the mean low back pain was significantly reduced after treatment in both groups; but reduction was more marked in operative group. Yehya[2], found the mean low back pain was significantly reduced after treatment in operative group (p<0.001). Seitsalo[8], also found significant reduction of low back pain in operative group than that of conservative group (p<0.01).

In this study the mean radiation pain was significantly reduced after treatment in both groups; but reduction was more marked in operative group. Yehya[2], found that the mean radiation pain was significantly reduced after treatment in operative group (p<0.001). But Seitsalo[8], found no significant difference in radiating pain between operative group and conservative group. Among 16 patients of operative group, 2 (12.5%) developed complications of which 1 (6.2%) developed superficial wound infection and another 1 (6.2%) developed implant failure. Superficial wound infection was recovered after exploration, dressing, antibiotics according to culture and sensitivity. The patients with implant failure was treated by further operation with removal of implant and further PLIF by adequate iliac bone graft and later on fusion occurred. This result was supported by Weinstein et al[4] that wound infection occurred in 5% cases, nerve injury in 1% cases and other complications in 12% cases. In another study Awwal[7], found that 2 patients (10%) developed complications. One (5%) developed infection which was recovered after exploration with removal of implant after solid bony fusion (PLIF) and 1 (5%) developed non-union due to implant failure and was treated by further operation with removal of implant and further PLIF by adequate iliac bone graft. Yehya[2] found 7 (23.3%) complications related to PLIF group.

In this study length of hospital stay was higher in operative group than that of conservative group (p<0.001). This result was supported by Awwal[7], that the range of hospital stay was 12 days to 36 days. Mean hospital stay was 24.4 days in patients underwent PLIF for spondylolisthesis. The difference may be due to protocol of the institution that all patients were discharged after removal of stitches. In this regards Yehya[2], reported that postoperative hospital stay was 3.9±1.3 days in PLIF group.

In operative group, excellent result was found in 7 (43.8%), good in 7 (43.8%), poor in 1 (6.2%) and fair in 1 (6.2%) patients; while in conservative group, good result in 2 (12.5%), fair in 8 (50%) and poor in 6 (37.5%) cases in this study. Difference between two groups was statistically significant (p<0.001). In this regards Awwal[7], found excellent result in 40%, good in 50%, and poor in 10% cases. Yehya[2], reported that

excellent result was found in 66.7%, good in 30%, and poor in 3.3% of patients of their series.
In this study final result was satisfactory in 14 (87.5%) and unsatisfactory in 2 (12.5%) patients of operative group; while satisfactory in 2 (12.5%) and unsatisfactory result was found in 14 (87.5%) patients of conservative group. Difference between two groups was statistically significant ($p<0.001$) which was supported by studies done by Awwal[7], and Yehya[2].

Limitations of the study:
1) No ready data on prevalence of grade-II spondylolisthesis in Bangladesh.
2) Small sample size.
3) This study was conducted in a tertiary level hospital that may not reflect the result in other part of the country.

CONCLUSION
It can be concluded from this study that operative treatment (PLIF) is the better option for achieving satisfactory outcome in grade-II spondylolisthesis. Further multicentre randomized control trial involving large sample size can be conducted to evaluate PLIF and conservative treatment in grade-II spondylolisthesis to provide a better conclusion.

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Original Article

Congenital Anomalies in Newborn: A Hospital Based Retrospective Study

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ABSTRACT

Congenital anomalies are one of the leading causes of neonatal mortality in the developed countries. And the developing countries are now a day facing the problem increasingly as the obstetric and neonatal care is improving in these countries including Bangladesh. This retrospective study was done in the neonatal unit of Jalalabad Ragib-Rabeya Medical College Hospital from January 2012 to December 2013 to find out the frequency and systemic involvement of congenital malformations in newborns admitted in this hospital. Among 6291 neonates admitted during the study period 181 babies had congenital defects, which was 2.88% of the total admission. Among the babies having congenital anomalies 69.62% were male, 29.83% were female and there was only 1 (0.55) baby with ambiguous genitalia. Cardiovascular system involvement was found highest (28.34%) in our study, followed by genitourinary (17.65%), musculoskeletal (16.04%) and gastrointestinal (10.69%) system involvement. Respiratory system was least involved (0.53%) in this study. In cardiovascular system, the most frequent defect was ventricular septal defect (VSD).

Key words: *Congenital anomaly, Neonate, Frequency.*

INTRODUCTION

Congenital malformation is a physical defect, present in a baby at birth, irrespective of whether the defect is caused by genetic factors or by events occurring or existing before or at birth. In a malformation, the development of a structure is arrested, delayed or misdirected early in embryonic life and the defect is permanent. According to World Health Organization (WHO), congenital anomalies can be defined as structural of functional defects including metabolic disorders, which are present at the time of birth[1]. The leading cause of infant morbidity and mortality in the developing countries are infections and malnutrition, whereas in the developed countries these are malignancies, accidents and congenital malformations. Now a day in the developing countries the proportion of perinatal death due to congenital malformation is increasing as a result of reduction of mortality due to other causes owing to the improvements in perinatal and neonatal care[2]. Children with congenital malformations have a wide array of problems including complex medical management issues, abnormalities in growth, special education needs, behavioral and psychological problems and also cosmetic concerns.

The paediatricians are faced with the challenges of making a diagnosis, pursuing therapeutic and prophylactic options, offering a prognostic prospect and often discussing recurrence risks with the family.

Considerable variations in the frequency of congenital malformations in different population have been reported from 4.3% in Taiwan[3] to 7.92% in the United Arab Emerates[4]. Reports from Oman show that it is 2.46%[5]. In England, USA and South Africa the incidence is 2%, 2.3% and 1.49% respectively[6]. The difference between the frequency and types of congenital malformations in different parts of the world may be due to genetic background, social, racial, nutritional, ecological and economic influences.

The control of genetic diseases should be based on an

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integrated and comprehensive strategy combining the best possible treatment and prevention through community education, population screening, genetic counseling and availability of early diagnosis[6].

Only a very few studies have focused on this problem in Bangladesh. This study was carried out to determine the overall incidence, types and distribution of various congenital anomalies in Jalalabad Ragib-Rabeya Medical College Hospital, Sylhet, so that further action can be taken to fight the emerging burden to be faced in near future in day to day paediatric practice.

MATERIALS AND METHOD

This was a retrospective study done in the neonatal unit of Jalalabad Ragib-Rabeya Medical College Hospital. All the neonates admitted in this hospital in ICU, SCABU or in neonatal ward from January 2012 to December 2013 were included in this study. This hospital is a tertiary care teaching hospital with all facilities to treat neonates and children including ICU and SCABU. The admission registers, patient's clinical data sheets, discharge and death registers were meticulously studied. A total of 6291 neonates were admitted in this period, among which 181 babies had one or more congenital anomalies. The diagnosis was made on the basis of thorough physical examinations, radiological, sonographic, echocardiographic and selected laboratory findings. Congenital anomalies were classified as isolated, multiple and syndromic and were divided according to the system involved.

The frequency of different types of anomalies were recorded and calculated. Statistical analysis was performed manually. Data were defined as frequency distribution and percentage.

RESULTS

Out of total 6291 neonates admitted in the neonatal unit during the study period 181 had congenital anomalies. The overall frequency of congenital anomaly was 2.88%. Among these babies 126 (69.62%) were male, 54 (29.83%) were female. Only 1 (0.55%) had ambiguous genitalia (Table I).

Table-I: *Sex distribution of congenitally anomalous babies (n=181).*

Sex	Number	Percentage
Male	126	69.62
Female	54	29.83
Ambiguous Genitalia	1	0.55
Total	181	100

Among 181 anomalous babies 135 (74.58%) had isolated birth defect and 46 (25.42%) had multiple birth defects. Out of these 46 babies, 29 (16.03) were of different syndromes having multisystem involvement (Table II).

Table-II: *Classification of anomalies (n=181).*

Anomaly	Number	Percentage
Isolated	135	74.58
Multiple	17	9.39
Syndrome	29	16.03
Total	181	100

Among the systemic distribution of congenital anomalies, there were total 187 defects, because some of the babies had more than one defect. In all systems cardiovascular system involvement was highest 53 (28.34%), followed by genitourinary 33 (17.65%), musculoskeletal 30 (16.04%) and gastrointestinal system 20 (10.69%). Congenital anomaly of the respiratory system was of least common in our study. Only 1 (0.53%) was identified as having defect of this system (Table III).

Table-III: *System wise distribution of the defects (n=187).*

System	Defects	No (%)
Cardiovascular	Venrticular Septal Defect	37 (19.78)
	Atrial Septal Defect	7 (3.74)
	Patent Ductus Arteriosus	7 (3.74)
	Dextrocardia	1 (0.53)
	Ebstein's anomaly	1 (0.53)
Genitourinary	Undescended testes	13 (6.95)
	Hypospadiasis	7 (3.74)
	Hydrocele	5 (2.67)
	Hydronephrosis	3 (1.6)
	Anovestibular fistula	1 (0.53)

	Vaginal cyst	1 (0.53)
	Inguinal hernia	1 (0.53)
	Micropenis	1 (0.53)
	Ambiguous genitalia	1 (0.53)
Musculoskeletal	Club foot	15 (8.02)
	Polydactyly	5 (2.67)
	Amniotic band	3 (1.6)
	Achondroplasia	2 (1.06)
	Osteogenesis imperfecta	2 (1.06)
	Arthrogryoposis Multiplex Congenita	1 (0.53)
	Congenital Dislocation of Hip	1 (0.53)
	Genurecurvatum	1 (0.53)
Gastrointestinal	Hirschsprung's disease	6 (3.2)
	Congenital Pyloric Stenosis	5 (2.67)
	Anorectal malformation	4 (2.13)
	Oesophageal atresia	2 (1.06)
	Tongue tie	2 (1.06)
	Omphalocele	1 (0.53)
Head, Neck and Face	Cleft palate	8 (4.27)
	Cleft lip	6 (3.2)
	Facial anomaly	1 (0.53)
	Anotia	1 (0.53)
CNS	Hydrocephalus	6 (3.2)
	Meningocele	4 (2.13)
	Microcephaly	1 (0.53)
Respiratory	Tracheo-oesophageal fistula	1 (0.53)
Syndromes	Down syndrome	19 (10.16)
	Pierre Robin syndrome	6 (3.2)
	Turner syndrome	1 (0.53)
	Edward syndrome	1 (0.53)
	Unclassified	2 (1.06)

DISCUSSION

Congenital anomalies are important causes of still births and infant mortality, and are contributor of childhood morbidity. Now a day birth defects are being diagnosed in an increasing number in the antenatal and neonatal period due to improved diagnostic technology, especially ultrasonography and echocardiography. Though at present congenital anomalies account less to the infant mortality rate in the developing countries like Bangladesh but improvements in the obstetric and neonatal management may alter the scene and congenital anomalies might probably be a leading cause of morbidity and mortality in future as already is in the west.

The incidence of congenital malformations in the present study was 2.88% which is in conformity with other studies in Bangladesh[7], India[8], Iran[9]. However some studies also reported lower incidence[10,11,12] and in some other the incidence was even higher[13,14].

Among the systemic involvement congenital malformation was found highest in the cardiovascular system (CVS) in our study, which was 28.34% followed by genitourinary (17.65%), musculoskeletal (16.04%) and gastrointestinal system (10.69%). Baby with congenital anomaly of the respiratory system was found least common (0.53%) in this study. Many other studies reported musculoskeletal system as the commonest site[3,7,8,9,16]. But we found cardiovascular system most commonly involved in our study. This may be due to the use of echocardiography in all suspected cases in this hospital. The CVS involvement was also found at the top of the list in studies done in India[2], Singapore[15], and China[17]. Ventricular septal defect is the commonest cardiovascular defect in all these studies, which is similar to this study.

Some studies have found some other systems as commonest in their study, eg. gastrointestinal system in Nigeria[13], central nervous system in Turkey[6] and

Brazil[12]. The difference in observations in systemic involvement may be due to infrequent use of investigations in some centers. Musculoskeletal system defects are easy to be detected by proper physical examinations.

In our study we found male were suffering more than female from congenital malformations. The male female ratio in our study was 2.8:1. Most of the studies found male predominance[1,3,7,8,9,14,18], except some, where female were found to be affected more[10,19]. In this study we found only one case of ambiguous genitalia.

Among the chromosomal abnormalities Down syndrome was commonest in our study like other studies[3,5,10,12,15,16]. The rate of Down syndrome was much higher (10.16%) in this study in comparison to the others.

Despite the high recurrence rate of congenital anomalies, there are no well accepted preventive measures in developing countries like Bangladesh. Increasing awareness about maternal care during pregnancy, educational programme on proper age of pregnancy, consequences of consanguineous marriage needed to be addressed to decrease the incidence of congenital anomalies and their co-morbidity in childhood period.

CONCLUSION

This study has indicated the prevalence and pattern of different types of congenital anomalies seen in this area. But the actual incidence may be more than that of this study if we could include abortions, stillbirths and genetic tests. More research is needed to determine the incidence, types, and risk factors of congenital malformations in this locality.

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Review Article

Acute Encephalitis Syndrome: A Comprehensive Approach for Evaluation and Management

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ABSTRACT

Acute encephalitis syndrome (AES) is a medical and neurological emergency, characterized by acute onset of fever and a change in mental status with or without new onset of seizure at any time. The etiological agents are varied, and paediatricians treating such children often feel limited by the lack of uniform guidelines on evaluation and management of these critically ill children especially in resource-constrained setting. Physicians should be aware of immediate consideration of key issues including immediate life support, identification of cause, empirical antimicrobial therapy pending results of investigations.

Key words: *Encephalitis, Investigations, Management.*

INTRODCTION

Encephalitis is defined by the presence of an inflammatory process of the brain in association with the clinical evidence of neurologic dysfunction[1]. Clinically, a case of encephalitis syndrome is said to have in a person of any age, at any time of year with the acute onset of fever and a change in mental status (including symptoms such as confusion, disorientation, coma or inability to talk) and/or new onset of seizures (excluding febrile seizures). Acute encephalitis syndrome (AES) is the term used by World Health Organization (WHO) for syndrome surveillance in the context of Japanese encephalitis. This definition includes not only viral encephalitis, but also all etiologies of fever and altered sensorium, such as bacterial meningitis, tubercular meningitis, cerebral malaria and acute disseminated encephalomyelitis. A period of up to 14 days was considered by consensus to define acute[2]. Acute encephalitis syndrome is a medical and neurological emergency, requiring immediate consideration of key issues including immediate life support, identification of cause, and when available, institution of specific therapy[3]. The etiologic agents are varied, and physicians treating such children often feel limited by the lack of availability of diagnostic testing of most of these agents. Paediatricians who treat these children should be aware of how to manage a children with suspected encephalitis, as specific antiviral therapy is life saving in some diseases and these should be diagnosed without delay. Moreover, supportive care is of paramount importance in the management of these children[4].

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Etiology:

In the approach to the patient with encephalitis, an attempt should be made to establish an etiologic diagnosis. Although there are no definitive effective treatment in many cases of encephalitis, identification of a specific agent may be important for prognosis, potential prophylaxis, counseling of the patients and family members, and public health interventions[5]. Of the pathogens reported to cause encephalitis, the majority are viruses. However, despite extensive tests, the etiology of encephalitis remains unknown in most patients. Despite the wide range of viruses that have been reported to cause encephalitis, specific antiviral therapy is generally limited to infections caused by

herpes virus specially herpes simplex virus and HIV[6]. It may be sporadic like herpes simplex encephalitis (HSE) or epidemic such as Japanese B encephalitis (JE). Cerebral malaria, pyogenic and tubercular meningitis and ricketssial diseases may mimic the clinical and/or laboratory characteristics of the agents causing acute encephalitis syndrome[7].

Clinical presentation:

The syndrome of acute encephalitis shares many clinical features with acute meningitis, such that patients with either syndrome may present with fever, headache and altered level of consciousness. Although mental status changes early in the course of diseases are generally more common in patients with encephalitis, this finding does not reliably differentiate patients with encephalitis from those with bacterial meningitis and it is important to consider both diagnoses at presentation. Other findings in patients with encephalitis include acute cognitive dysfunction, behavioral changes, focal neurologic signs, and seizures[8].

Detailed history and examinations:

A careful history should be taken with special emphasis on onset and duration, and other features such as fever, headache, vomiting, irritability, seizure and rash. A history of fever or recent illness suggests an acute infectious etiology, but other disorders in which encephalopathy may be preceded by a febrile illness must also be considered. These include disseminated encephalomyelitis, Reyes syndrome, and mitochondrial and other inborn errors of metabolism[9].

The general physical examination may provide helpful etiologic clues. Presence of pallor may indicate cerebral malaria or intracranial bleeding. Jaundice may indicate hepatic encephalopathy or cerebral malaria. Skin rashes are common in meningococcemia, dengue, measles, varicella, ricketssial diseases and enteroviral encephalitis. Petechiae are seen in meningococcemia, dengue, and viral hemorrhagic fevers. Parotid swelling and orchitis point toward mumps as etiology[10]. Labial herpes in young children may point towards herpes simplex virus encephalitis[11].

The neurological examination is targeted to document the level and localization of brain dysfunction. It may also provide information about the potential causes. The level of consciousness must be recorded in the form of an objective scale, such as Glasgow Coma Scale (GCS). A modified GCS should be used for infants and children[12]. Pupillary size, shape, symmetry and response to light provide valuable clues to brainstem and third nerve dysfunction. Unilateral pupillary dilatation in the comatose patient should be considered as evidence of oculumotor nerve compression from ipsilateral uncal herniation unless proved otherwise[13]. In HSE, neurological findings are mostly related to dysfunction of the fronto-temporal lobes, viz; personality changes, confusion and disorientation[14]. Fundus examination must be performed to look for papilledema and retinal hemorrhages. Retinal hemorrhages are an important clue for cerebral malaria in endemic setting, being present in nearly a quarter of the patients[15].

Investigations:

Basic investigations include[16] complete blood count (including platelet count), blood glucose, serum electrolytes, liver and kidney function tests, blood culture, arterial blood gas analysis, serum lactate level (if available) a peripheral blood film (PBF) & rapid diagnostic test (RDT) for malarial parasite and chest X-ray. If the patient is hemodynamically stable and no features of raised intracranial pressure (ICP), a lumbar puncture (LP) should be performed: CSF should be examined for cytology, biochemistry, gram stain, Ziehl-Nielsen stain for AFB, bacterial culture, latex agglutination, PCR for HSV1 & 2 (if available) and IgM antibody for JE and dengue virus (if suspected). CT scan may be only done in the emergency evaluation[16] but it may give valuable information such as presence of blood, cerebral edema, temporal lobe hypodensities (in HSV encephalities) and basal exudates & hydrocephalus (in tubercular meningitis). If possible, an MRI should be obtained as soon as the patient is stable as it provides useful information regarding the etiology and alternative diagnosis.

Management:

The initial treatment approach to the patient with suspected encephalitis includes early recognition of the clinical syndrome, appropriate diagnostic evaluation and imidiate administration of certain antimicrobial agents. Unfortunately, despite extensive testing to identify an etiologic agent, most cases of presumed infectious encephalitis remain unexplained. Another major challenge in patients with encephalitis is to determine the significance of an infectious agent found outside the CNS, usually identified by serologic testing or culture of a non-CNS site in the context of encephalitis; these agents (e.g. hepatitis C virus, rotavirus, *M. pneumonae*, *chlamydia* species and RSV) may play a role in the CNS manifestations of illness[7].

Empirical treatment must be started, pending the results of investigations. A broad spectrum antibiotic must be given, which can be stopped if no evidence of bacterial meningitis is forthcoming. Even though epidemiological data on HSE in this sub-continent is lacking, acyclovir must be started, as HSE is a treatable disease and it should be stopped if an alternative diagnosis has been made. Empirical anti-malarial (artemisinin based combination therapy) must be started if there is a suspicion of cerebral malaria which should be stopped if the peripheral smear and rapid diagnostic tests for malaria reveal negative[16].

After stabilization of airway, breathing and circulation, other supportive care measures must be instituted. Timely and appropriate supportive care is of paramount importance to reduce the mortality and morbidity. Patients with GCS <8, having feature of raised ICP, status epilepticus and shock should ideally be managed in an intensive care unit. Fluid therapy should be targeted to maintain euvolemia and normoglycemia and to prevent hyponatremia. Isotonic fluids are preferred and hypotonic fluids must be avoided[2]. If there are features of syndrome of inappropriate secretion of ADH (SIADH), only then fluids should be restricted to two thirds of the daily maintenance.

Management of raised ICP is crucial as it is a common cause of death in such children. A common mistake in the emergency department is to mistake decerebrate posturing for seizures, and inappropriately treated with antiepileptic drugs. Therefore, clinical parameters of ICP have to be used to guide the treatment[17]. Mannitol should be given at a dose of initial bolus of 0.25g/kg, then 0.25g/kg, g/6hr up to 48 hours. Hypertonic saline (3%) is preferable to mannitol in the presence of hypotension, hypovolemia and renal failure at a rate of 0.1-1ml/kg/hr by infusion; the serum sodium should be targeted to a level of 145-155 meq/L[18].

Blood glucose should be monitored and both hypo and hyperglycemia should be avoided. If the child is having seizures, or has history of seizures, anticonvulsant should be administered. A benzodiazepam should be given (lorazepam 0.1mg/kg) followed by phenytoin loading (20mg/kg). Even if there is no history or clinical evidence of seizures, empirical anticonvulsant therapy may be considered in children with GCS <8, and features of raised ICP. This is because seizures may further raise the ICP and this worsen the outcome[17]. The role of corticosterids in the treatment of viral encephalitis is not established. However, corticosteroids may be considered along with acyclovir in patients with marked cerebral edema, brain shift or raised ICP. Their role remains controversial because steroids may theoretically increase viral replication[18]. Acid-base and electrolyte abnormalities should be corrected. Any concurrent bacterial infections e.g. pneumonia should be treated with appropriate antibiotics[18]. Nosocomial infections, aspiration pneumonia and coagulation disturbances may occur as complications, should be detected and treated. The patient should be started on early physiotherapy, to prevent the development of contracture[8].

Prevention strategies:

Prevention and/or control of acute encephalitis syndrome (AES)[19] requires a multipronged strategy which should consist of (i) surveillance for cases of AES; (ii) vector control; (iii) reduction in man-vector contact; and (iv) vaccination.

Immunization:

Human vaccination is the only effective, long-term, cost-effective measure against AES. At-risk population should receive a safe and efficacious vaccine as part of the national immunization program. Vaccines are under development against many viral agents responsible for AES in children, but primarily it is Japanese Encephalitis (JE) against which vaccines are available for routine use in some countries[6].

CONCLUSION

Viral encephalitis is an important cause of mortality and morbidity in children. The etiological agents are varied. There are numerous lacunae in our knowledge, problems in epidemiological investigations, lack of diagnostic facilities, as well as difficulties in managing these critically ill children. Paediatricians who treat these children should be aware of how to manage a child with suspected encephalitis covering all the probable etiologies without delay, pending results of investigations. Moreover, optimum supportive care is of paramount importance in the management these children.

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Case Report

Rapid Eye Movement Sleep Behavior Disorder: A Case Report

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ABSTRACT

Rapid eye movement sleep behavior disorder (RBD) is a parasomnia, manifested by motor activity, often violent in nature that arises during rapid eye movement (REM) sleep. Patients appear to "act out their dreams" in which, the exhibited behaviors mirror the content of the dreams. A middle aged male of 52 years was admitted in Jalalabad Ragib-Rabeya Medical College Hospital Sylhet, with the complaints of violent and destructive behavior during sleep for last 1 year. Having diagnosed as REM sleep behavior disorder clinically, he was managed with pharmacological and psychological approach. Appropriate diagnosis and treatment improved the quality of life of the patient.

Key words: *REM sleep behavior disorder, Sleep.*

INTRODUCTION

REM sleep behavior disorder (RBD) is characterized by loss of normal skeletal muscle atonia during rapid eye movement (REM) sleep with prominent motor activity and dreaming[1]. This disorder is relatively a new diagnosis, first described in the mid-1980s[2]. In REM sleep behavior disorder, hitting, jumping, running and kicking are typical. REM sleep behavior disorder can be dangerous to the sleepers but is also concerning for family members and roommates because it is associated with violent behavior. The prevalence of REM sleep behavior disorder is believed to be around 0.5%[3]. As per knowledge, very few case reports on REM sleep behavior disorder was found in recent literature in Bangladesh. The reported case described the clinical implication of the disorder. The paucity of case reports of REM sleep behavior disorder encouraged us to report this unique case.

CASE REPORT

Mr. X, 52 years, married, educated up to HSC, businessman, hailing from urban area of Sylhet was admitted on June 2012 in the department of Psychiatry of Jalalabad-Ragib Rabeya Medical College Hospital Sylhet, with the complaints of violent and destructive behavior during sleep for last 1 year. It was stated that he was alright 1 year back. Then he developed vivid nightmares accompanied by "thrashing around" in bed and frequently falling out of bed. It had got to the point where his wife had to sleep elsewhere because she was afraid of suffering from bodily injury. He was extremely ferocious, overexcited, violent and physically abusive to others around one hour after falling asleep. He had also self-mutilating behavior and he destructed the household things during the episodes. But he had no history of sleep-walking episode, respiratory distress, snoring, incontinence and tongue bite. After awakening from sleep there was no abnormal behavior and he also failed to recall the episode of sleep. He came to know about the terrified episodes from his family members. He developed anticipatory anxiety to sleep and he started to avoid sleeping but he had no day time drowsiness. Gradually he developed impairment in his personal and occupational life. There was no family history of psychiatric or chronic medical illness. There was no history of consanguinity of marriage of his parents. He has 2 brothers and 4 sisters and he is the 5th offspring

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of his parents. Now he lives in a nuclear family with his wife and three daughters. He was born safely and brought up as a healthy child with normal milestones of development. He started school at 6 years and continued study regularly with an average performance. He passed HSC examination at 18 years and joined a travel agency and worked there as an accountant for three years. Then he started his own business and still now had been continuing the business with good performance. He got married at 25 years and had been in a good relationship with his wife. He had no past medical and psychiatric illness. He was a smoker and started smoking from age 15 years and used to take 3 packs of tobacco per day. He had good interpersonal relationship with his family members and friends. He appeared to others as extroverted and controlling. His predominant mood was stable, cheerful and self-confidant. He had moral and religious beliefs and used to pass his leisure time with his family members. He had no sleep disturbance. On mental state examination he was found well-kempt with a shirt and trouser. Few cut marks were observed on both his forearms. Eye to eye contact as well as rapport was established. There was no abnormal social and motor behavior. Mood was normal and speech was fluent and spontaneous. Thought content revealed phobia of sleep. No perceptual and cognitive disturbance was found. Judgments were good and he had insight into his illness.

On physical examination, his body built was average with good nutritional status. He was non-anemic, non-icteric and his pulse rate was 80 beats/minute and blood pressure was 120/80 mm of Hg. No other systemic abnormality was detected. All routine laboratory investigation reports were found within normal range. No abnormality was also reported on thyroid function test, electroencephalogram and MRI of brain.

According to patient's history, course of illness, mental state examination and exclusion of organic pathology by relevant investigations, he was diagnosed as a case of rapid eye movement sleep behavior disorder (RBD). Management plan was mainly based on pharmacological treatment. Informal psychotherapy was offered complimentary to pharmacotherapy. Counseling was given about safety measures in the sleep environment; for those at risk for injury. The general aim of pharmacological treatment was to prevent arousal out of sleep or to suppress rapid eye movement (REM) sleep. The patient was treated with clonazepam and dramatic improvement was noticed in his sleep quality. The resolution of the nightmares and the potentially dangerous thrashing movements confirmed by his wife, greatly improved the quality of his life and that of his wife also. Prior to discharge, his impulsivity along with aggressiveness during sleep was markedly reduced and he stated that he felt much better than before. Continuing medication and regular follow up were advised.

DISCUSSION

In REM sleep behavior disorder, the patient typically develops a progressive sleep disorder with the abnormal motor behaviors appearing during the middle or final third of the night, and almost never within the first 60-90 minutes after sleep onset. The motor behaviors are typically accompanied by the patient experiencing nightmares involving his or her being attacked or pursued by frightening dream characters. The patient talks loudly, shouts or jumps out of bed during sleep, occasionally injuring himself or others. Once awake the patient may take several minutes to reorient himself and may have visual hallucinations before regaining full consciousness[2,4,5]. Ninety nine percent of people with REM sleep behavior disorder are male and most of the cases begin after age 50 years[3]. Schenck and Mahowald reported 70 consecutive cases, which showed a marked predominance among older males with mean age at onset of 53 years[6]. These findings were mirrored by Olson et al who examined 93 consecutive cases, finding a mean age at onset of 60.9 years with an 87% male preponderance[7]. The mentioned studies support the presented case, where the patient was a male aged 52 years. REM sleep behavior disorder is associated with neurological disorders[8], though no neurological disorders were found in this patient. Different case series found a high incidence (33-57%) of neurological disorders, including Parkinson's disease, dementia without parkinsonism and multiple system atrophy[6,7]. REM sleep behavior disorder is often an early sign of impending neurodegenerative disease, particularly conditions involving alpha-synuclein deposition e.g. Parkinson's disease and Lewy body dementia[9,10]. This has given rise to the theory that REM sleep behavior disorder results from a decrease in the normal inhibitory outflow from pontine centers to the spinal motor neurons during REM sleep, allowing motor behaviors to emerge[11]. Also impressive, in these case series, was the high incidence of injuries to self or to bed partners which had been sustained (32-75%) because of the sleep disorder, which included occasionally fractures, dislocations and even subdural haematomas. In presented case, the patient also showed

injuries to himself[11].

The treatment of choice for REM sleep behavior disorder is clonazepam, which has been shown to be partially or completely successful in treatment in up to 87% of patients who used the drug[7]. In some patients with contraindications to this drug e.g. respiratory depression or obstructive sleep apnoea, alternative interventions such as safety bed environment may be sufficient[7]. Alternative pharmacological treatments include desipramine, carbidopa and clonidine[11]. There are also some case reports of positive response to the acetylcholinesterase inhibitor, donepezil[12,13]. The reported case illustrated the clinical features of the disorder; episodic loss of skeletal muscle atonia during REM sleep with consequent complex, often injurious, behavior as patient acted out their dreams. The case also demonstrated the degree of disturbance of the patient's and/or spouse's quality of life. The patient had typical clinical presentations of REM sleep behavior disorder; elderly male with sleep disturbance marked by the presence of violent nightmares and vigorous gross motor movements, leading to injury or potential injury to self or to bed partners. A final point is that REM sleep behavior disorder should always be considered as part of the differential diagnosis in elderly patients with nocturnal wandering and falls.

CONCLUSION

REM sleep behavior disorder is relatively an uncommon sleep disorder. It usually goes undiagnosed in clinical setting. It is important to diagnose this disorder, as it causes significant distress to the individual as well as family members. Rapid diagnosis and evidence-based treatment improves the symptoms of this disorder dramatically.

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JALALABAD MEDICAL JOURNAL

Case Report

Cornelia de Lange Syndrome: A Rare Case Report

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ABSTRACT

Cornelia de Lange syndrome (CdLS) is a rare multisystem developmental disorder characterized by facial dysmorphia (arched eyebrows, synophrys, depressed nasal bridge, long philtrum, down-turned angle of mouth), upper extremity malformation, hirsutism, cardiac defects, growth and cognitive retardation and gastrointestinal abnormalities. It is often diagnosed until children are older but ultrasonography (USG) can be used to diagnose this syndrome prior to birth. Here we present a case of $4^1/_2$ years old boy with Cornelia de Lange syndrome.

Key words: *Developmental delay, Mental retardation.*

INTRODUCTION

Cornelia de Lange syndrome, also called Brachmann-de Lange syndrome is a multiple congenital anomaly syndrome characterized by a distinctive facial appearance, malformations of the upper extremities, palatal abnormalities, prenatal and post natal growth deficiency, psychomotor delay, behavioral problems, cardiac, gastrointestinal and genitourinary anomalies, congenital diaphragmatic hernias and hearing loss. Facial dysmorphism includes arched and bushy eyebrows, synophrys, short nose with anteverted nares, long philtrum, thin upper lip and micrognathia[1,2]. Cornelia de Lange first described it as a distinct syndrome in 1933[3], although Brachmann described a child with similar features in 1916[4]. The majority cases are sporadic, occasionally transmitted in an autosomal recessive pattern. Although the exact incidence is unknown, it likely affects 1 in 10,000 live births[5].

CASE REPORT

A $4^1/_2$ year old boy, 3rd issue of his nonconsanguinous parents got admitted into Jalalabad Ragib-Rabeya Medical College Hospital with the complaints of vomiting several times for one day, mucous mixed stool for one day and fever for one day. His mother also complained of behavioral problem such as irritability & aggressiveness, low pitched cry, not growing well from 5 months of his age and cannot speak properly as per age. He was delivered at 30 weeks of gestation by vaginal delivery at hospital. His birth weight was 1800 gm. His perinatal period was uneventful and he had no history of CNS illness. He had history of repeated gastrointestinal problem and febrile episodes. There was history of delayed milestones of development. His neck control was achieved at 8 months, sitting after 1 year and walking at 3 years of age & now he can speak only monosyllable word. Examination revealed an irritable febrile child (Temp 101^0F) weighing 8.25 kg, height and OFC was 88 cm and 43 cm respectively. All these measurements were below 3rd percentile. He had bushy arched eyebrows, synophrys, long curly eyelashes, bilateral partial ptosis, up turned nose, down turned angle of the mouth & thin lips, long philtrum, high arched palate, low set ear, short neck, microcephaly, small broad hands with simian crease, hypospadius with cordi. Abdominal examination revealed normal. Neurological examination revealed a non co-operative child with use of only monosyllable word, cranial nerves were intact, muscle bulk and tone were symmetrically normal, deep reflexes were normal

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and planter responses were flexor. Other system revealed normal. Eye examination & tympanogram revealed normal. Clinically we diagnosed the case as Cornelia De Lange syndrome with acute gastroenteritis. USG of whole abdomen, CBC with PBF, serum electrolyte, thyroid function tests were within normal limit and karyotyping showed 46 XY.

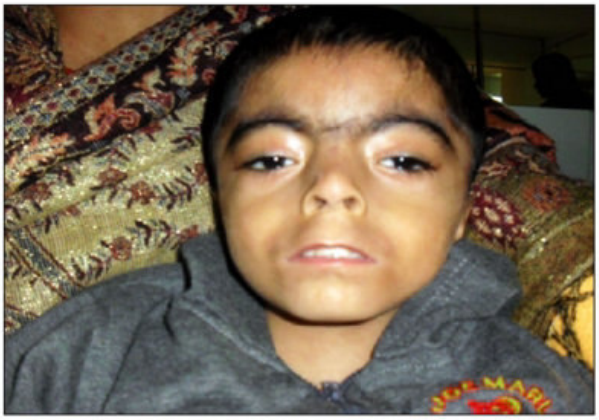

Figure-1: *Characteristic facies of Cornelia de Lange syndrome.*

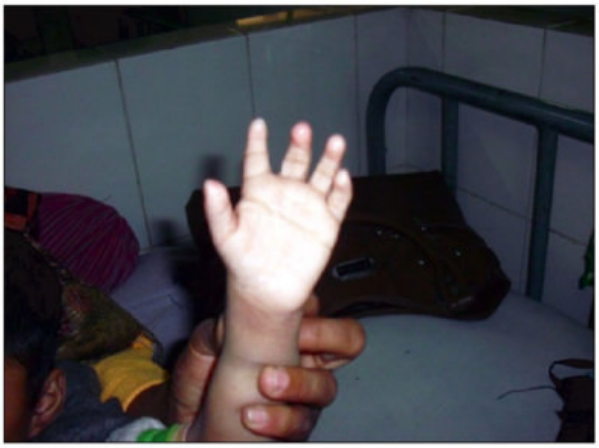

Figure-2: *Short broad hand with simian crease.*

DISCUSSION

Cornelia de Lange syndrome (CdLS) is a genetic anomaly that is present from birth. The main pathology is heterozygous mutations in a gene named NIPBL (Nipped-B-like-protein)[6], the human homolog of the Drosphila melanogaster. Nipped-B gene have been identified in approximately 50% of individuals with Cornelia de lange syndrome[7]. This NIBPL gene is localized on 5p13.2 chromosome and belongs to the family of chromosomal adherins involved in chromatid cohesion processes and enhancer-promoter communications[8,9]. The exact function of the human NIPBL gene product, called delangin is unknown but its wide expression pattern including expression in embryonic limb bud, branchial arch and craniofacial mesenchyme is consistent with many of the anomalies observed in Cornelia de Lange syndrome. Based on the clinical variability in CdLS, Van Allen et al proposed a classification system[10]. Type I or classic patients have the characteristic facial and skeletal changes. They have prenatal growth deficiency, moderate to profound psychomotor retardation and major malformations, which result in severe disability or death. Type II or mild, patients have similar facial and minor skeletal abnormalities seen in type I. They have mild to borderline psychomotor retardation, less severe pre and post natal growth deficiency and less severe malformations. Type III or phenocopy, related to aneuploidies or teratogenic exposures, in which the characteristics facial appearance may not appear until 2-3 years of age.

The symptoms of Cornelia de Lange syndrome are very vast. This syndrome affects the entire body systems. The skeletal system greatly affected by CdLS. It tends to either cause growth failure or anomalies of development of the upper extremities. Clinodactyle on the toes and fingers are common. Small hands and limitations with regard to elbow motion are also seen. Some children experience hip abnormalities that can affect the ability to walk.

Patients suffer from gastrointestinal problems. They often exhibit the symptoms of vomiting, belching, heart burn or intermittent poor appetite. Gastroesophageal reflux disorder (GERD) is commonly diagnosed in those with CdLS. This can interfere their appetite, social activities and sleep.

Visual problems are usually easy to identify. Nystagmus, strabismus, ptosis or myopia is few of the vision impairments that can occur in CdLS. Most have mild to moderate or even severe hearing loss. The children have narrow ear channel which lead to problems with chronic ear drainage or cholesteatoma, a collection of skin cells in the ear.

There are also physical malformations. Hirsutism along with heavy eyebrows and long eyelashes are found. Thin upper lip, cleft palate, deciduous teeth and small nose are also associated with CdLS. Mild to moderate mental retardation is also common.

Diagnosing CdLS generally occurs after birth with thorough clinical examinations. But it can be very apparent and visualized by ultrasonography. Initial diagnosis can usually be made between 20 to 25 weeks of gestation[11]. Once diagnosis has been made few studies are recommended like echocardiography for the

cardiac defects, ultrasonogram of whole abdomen to rule out malrotation and reflux, hearing evaluation and developmental assessment. Main treatment protocols are regular check up and physical, occupational and speech therapy. In addition audiologic testing every two to three years, repeat evaluation of GERD, annual ophthalmologic evaluation are also necessary. Orthopedic involvement may be required for joint contractures, hip complications, development of scoliosis or orthotic use[12].

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JALALABAD MEDICAL JOURNAL

Letter to the Editor

Walking in the patient's shoe

Sir,

I understand that your journal is meant for scientific papers pertinent to medical science and matters of importance related to the patient's wellbeing, I also know that your community's highly qualified patrons have this common objective of their research and publications, "patient's care". Sir though not a scientific paper, but my journey through my illness could in some ways be beneficial to other patients under care of doctor community.

If life starts at 40, I was then 15 when I realized that I am not well. As I was already enjoying a reasonably good health that I wished will be my asset for some time to come, I decided to do something for myself. I knew my condition was inguinal hernia which today or tomorrow had to be operated. As I felt my symptoms were worsening I took the matter to two, as much as I knew, reasonably skilled surgeons, as I knew that it is taken easily and I can be operated upon in my town and my known environment. I discussed the situation with two surgeons, and I was rather surprised to hear from them that things have changed and new technique of surgery will enable me to recover faster and with less complications, and as "money is no problem" I should take the option of laparoscopic repair (situation no. i: money should not be the deciding factor when common standard patterns of operation are norms). Though not rich, but I could afford that (situation no. ii: I had never seen anybody operated by this technique nor anybody is suggested so). With my wife and daughter we embarked on the journey all the way to India, New Delhi and operated next day in one of very renowned hospitals by a very famous surgeon, I was briefed that complications are very rare and I shall resume my normal activities soon. We came back soon and I was ok, I thanked my doctor friends for their suggestion and resumed my normal life. In only 2-3 weeks time I started feeling pain which worsened day by day, over phone I contacted them and I was assured nothing is wrong and I should keep moving (worst advice as I came to know latter, that I actually needed rest, and movement facilitated by large doses of pain killers worsened my condition beyond repair!). I soon needed walking aid, stick and walker and increasing doses of pain killers, I could however realize that I am not ok and something must be wrong, though the surgeon from India insisted on his diagnosis as neuralgic pain, itself very painful, and I need not visit him we decided that we should go to them. My other doctor friends worried about me took me to other specialists and examining me different diagnoses were made, (GBS, MND, muscular dystrophy etc.) In contrast to my earlier visit I was received with a cold shoulder, in my only visit with my surgeon I was again convinced that the situation was hardly related to my operation two months ago and referring me to neurophysician (to which I protested but they insisted) and to convince me and my family they even said it may be cancer! It was I think de shouldering the responsibility and the pride that operation was uneventful! After undergoing invasive and expensive tests (hardly necessary) and all doctors receiving their fees regularly even the surgeon himself that I could see him only once, they said this can happen and has happened, that, it is painful and takes time to heal, minimum one year, that, they don't know why it happened but it is rare and others who have suffered, majority ultimately improved and that I need rest for long time!. Painfully enough, me walking with aid in absolute frustration, the chief surgeon refusing to see me with excuses of attending chambers in different hospital, we decided to return home. (Situation iii: is it not true for the doctors that if you cannot make a diagnosis, at least make a decision? It was not done in my case). It was pointless to stay in a hotel in a strange land, sick and disabled and having no hope to hear some advice and words of comfort from the doctors who were supposed to be angels of comfort at that time. (Situation iv: are not the doctors suppose to be more courteous and sympathetic to patients with complications?). (Situation v: if the operation would be done at home, in such situation I am sure the doctor would personally visit me or at least inquire about me over phone). The tests already proved beyond doubt that my miserable condition was but due to complications of surgery. I was still fortunate that back at home a senior surgeon has made a diagnosis of my complication and at least I had some idea about my situation and could start a plan. My condition was now diagnosed as ostietis pubis, a complication that may follow this type of operation, the clips used to fix the mesh

(used to repair hernia) had penetrated too much in my bones that led to severe form of inflammation. My family members and friends in a short time collected materials from internet that confirmed the diagnosis that it is v. painful (which I already had experienced) takes time to heal (After 9 months I still have pain and occasionally need help, a stick or stairs railing) and the level of activity is less than 50% of pre operation period. The tests performed are among most harmful tests, (PET CT scan) which may show its bad effect any time. (Situation vi: are the doctors servant to investigations? The human side of the profession is declining?). Shortly after the tests were carried out I was diagnosed to have another serious condition, a heart problem, atrial fibrillation (itself a complicated condition) which came from nowhere, few months before that I was healthy with preoperative investigations all within normal limits and sustained 3-4 hours operation under general anesthesia. I cannot believe that it is not related to PET CT scan, as the oral and I/V contrast media interact with normal tissues and that could be the reason for my heart's nodal damage which is a permanent feature (I could not verify this matter when I asked doctors of this discipline if it is actually related to the test!!). Sir, glory of medical professionalism, I am sure comes with responsibilities and commitments, Sir as a patient I think I was time and often deprived of that doctor patient's relationship, is it not true that when suggesting or treating a patient the doctor should also think of walking in the patients shoe? Is it not true that simple diseases need simple treatment, and that some should not go through expensive tests and treatments simply because he can afford? I know I signed a consent form that doctor is not to be blamed even if I die during the procedure, but does it justify the fact that I was not told about such a horrific complication (for nearly two months I was absolutely dependent on others for most basic daily activities of life, getting out of the bed, changing cloth, even changing position in the bed). At times serious negative ideas came to my mind which somehow passed away. Is it not true that serious negative impact on a patient's life should be considered before planning and suggesting a treatment protocol? The situation that I, my family and friends went true cannot be described by any pen; it was simply unbearable and unforgettable with lifelong consequences. Sir, is it not true that once a complication arises in course of the treatment the treating doctor and the team should face the patient and the family members and share their feelings, may be nothing wrong to exchange few compassionate words and even say sorry!! How comforting it would be for us in our second trip to hospital if there would be a session of counseling, showing some concern and offering some assistance in form of finding practical treatment plan. The only reliable treatment, later on I found is, stem cell therapy far beyond our reach in our situation where a visa formality for going to those countries takes months and expenditures, many millions. The tale took different turn when the inflammation of the bone reached ischium, the bone we sit upon, and more severe pain I experienced, later I found the statement of orthopedic surgeons treating such cases that it is most sever painful condition that a person may experience, now they called it ischial bursitis ! This phase of complication started nearly 5 months after the operation and was controlled not by any pain killer but by large doses of steroid as internationally accepted. I don't think it is necessary for me to write in this letter anything about steroid therapy complications! I soon gathered myself, my frustrated family continued to boost their morals up and supported me, my large community of doctors friends and else showered my with love and affection, gradually things are fallen in their positions and trail of physical and financial loss (expenditure and loss of work income together) and sufferings are getting faded, though I can never be the person I was, need to take medicine or take other measure for rest of my life but I am happy still to overcome the situation and limp around for some time to come, but I cannot stop thinking that "was everything rational both on my part and my treating doctors as well?"

P.S. Sir two weeks after I started writing this article and I am not sure that I send it to you or not and if you include it in your journal volume or not (as by now I have spoken out and revealed some gray area of doctor patient relationship and my own secrets!) I am warned by my doctor about new levels of my blood sugar going higher! Steroid now getting its toll on me, and all this in less than a year. I have started thinking that "should I still wait for more surprises to come?

(Names, places and dates remained in safe custody of the editor-in-chief and executive editor of this journal).

Miscellaneous

Campus News

Postgraduate Training Recognized by BCPS

A high powered inspection team consisting of eight members from Bangladesh College of Physicians and Surgeons (BCPS) Dhaka, headed by Professor Syed Mokarrom Ali, visited the Jalalabad Ragib-Rabeya Medical College and Hospital on 27-12-2010. On the recommendations of the inspection team, the Council of Bangladesh College of Physicians and Surgeons (BCPS) has renewed recognition to the departments of **Paediatrics, Ophthalmology, Otolaryngology, Psychiatry, Pathology (Histopathology)** and **Orthopaedic Surgery** for imparting training to the resident doctors provisionally for a period of five years with effect from 21-09-2009. The Council has granted recognition to the department of **Paediatric Surgery** for imparting training to the resident doctors provisionally for a period of five years with effect from 13-02-2010. The training will be accepted for appearing in the FCPS, MD, MS Part-II and diploma examinations in these specialties. The postgraduate training imparted from the departments of **Surgery, Medicine** and **Obstetrics & Gynaecology** were recognized by Bangladesh College of Physicians and Surgeons (BCPS) earlier in 2003 and **Dermatology & Veneriology** and **Physical Medicine** in 2008.

Programmes

- On 10th July 2013, Jalalabad Ragib-Rabeya Medical College and Hospital arranged a warm reception to the Chairman of the governing body Danobir Dr. Ragib Ali as he is elected as Chairman, North South University Board of Trustees and Foundation. The programme was presided over by the Principal Maj. Gen. (Retd) Prof. Md Nazmul Islam.
- 50th meeting of Governing Body of Jalalabad Ragib-Rabeya Medical College and Hospital was held in the college conference room on 14th September 2013. The meeting was presided over by Founder of the college and Chairman of Governing Body Danobir Dr. Ragib Ali. The Member Secretary and Principal of JRRMC, Maj. Gen. (Retd) Prof. Md Nazmul Islam, Mr Abdul Hye, Senior Vice President of Ragib-Rabeya Foundation, and other members of the Governing Body were also present in the meeting.
- Olympus EVIS EXERA III (CV-190) 190 endoscopy, colonoscopy and ERCP machine is introduced in the Department of Gastroenterology, Jalalabad Ragib-Rabeya Medical College Hospital on 24th September 2013. This is one the best machine in the world for both diagnostic and therapeutic purposes in the field of gastroenterology.
- Dr. Angel Shubhagata Baidya, Associate Professor, Department of Surgery and a 4th batch student of Jalalabad Ragib-Rabeya Medical College committed suicide on 5th December 2013 in his office room in the hospital building.
- The college observed the 7th death anniversary of Begum Rabeya Khatun Chowdrury, the co-founder of Jalalabad Ragib-Rabeya Medical College and Hospital on 12th December 2013, organizing a huge day long programme.

Instructions for Authour(s)

Manuscripts on clinical, review, experimental and historical topics pertinent to medical sciences are accepted for the publication in this journal. The papers are accepted for the publication with an understanding that they are solely submitted for this journal. The statements, comments or opinions expressed in the papers are exclusively of author(s), not of editor(s) or publisher. The manuscripts are to be prepared as described in following instructions. 3 (three) hard copies are to be submitted. Letters about potentially acceptable manuscripts will be sent after review process is complete. No manuscripts will be returned if not accepted for publication. In addition an electronic/digital version of the manuscript composed in MS word 98/2000 should be submitted in a diskette.

Preparation of manuscripts

Manuscripts should be typewritten, double-spaced throughout (including references and tables) on one side of good quality A4 sized paper, with margins of at least 25 mm. Each component of the manuscript should begin on a new page in the sequence of title or cover page, abstract with key words, text, acknowledgement, references, tables and legends for illustrations.

Title page will contain

a. Concise and informative title of the article
b. Author(s) name, highest academic degree(s).
c. Name of the department(s) and institution(s).
d. Address for correspondence and reprint (please include e-mail address and fax if available)

Abstract and key words

An informative abstract not more than 250 words should briefly describe the objectives, materials and methods, results and conclusion. Number of key words should not more than ten and none that are in the title.

Text should contain Introduction, Materials and Methods, Results and Discussion in sequence.

Introduction

It should briefly disclose the purpose of study. It will help the readers with the problem finding. It should be clear in nature and purpose.

Materials and Methods

Clearly it should include materials, experimental procedures, methods etc. Mention the nomenclature, source of material, equipment with manufacturer's details in parentheses. Describe new methods in sufficient detail indicating their limitation. Established methods should be cited with authentic references. Ethical standards should be followed in reporting experiments done in human subjects. Precisely identify the dosage and route of administration, when drugs or chemicals are used. Measurements and data should be stated in SI unit, or if SI unit does not exist, use an internationally accepted unit. Abbreviations and acronyms should be used for widely used terms and names, which occurs consistently and frequently in the manuscript.

Results

It should be presented in logical sequence in text, tables or illustrations. Duplications of data in the tables or illustrations should be avoided. Emphasize or summarize only important observations.

Discussion

Emphasize the new and important aspects of the study and conclusion derived from them. Detail data written in introduction and other portions of text should not be repeated. The implication of results and their limitations including suggestion for future research should be included in the discussion.

References

Number the references consecutively in order mentioned in the text. Full list of reference should include all authors. Avoid using abstracts as references. References to paper accepted but not yet published should be designated as 'in press' or 'forthcoming'. Authors should obtain written permission to cite such papers as well as verification that they have been accepted for publication. Information from manuscripts submitted but not accepted should be cited as 'unpublished observations' with written permission from the source. Use the styles of example below, which are based on the formats used by US National Library of Medicine (NLM) in the Index Medicus. The title of journals should be abbreviated according to the style used in Index Medicus.

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a) List all six authors when six or less

Vega KJ, Pina I, Krevsky B. Heart transplantation in associated with an increased risk for pancreatobiliary disease. Ann Intern Med 1996; 124 (11): 980-3.

As an option, if a journal carries continuous pagination throughout a volume (as many journals do) the month and issue number may be omitted.

b) More than six authors

Parkin DM, Clayton D, Black RJ, Masuyer E, Friedl HP, Ivanov E, et al. Childhood leukaemia in Europe after chernobyl: 5 year follow-up. Br J Cancer 1996; 73:1006-12.

c) No author given

Cancer in South Africa (editorial). S Afr Med J 1948; 84:15

d) Organization as author

The cardiac society of Australia and New Zealand. Clinical exercise stress testing. Safely and performance guidelines. Med J Aust 1990; 146: 267-9.

Books and monographs

a) Personal author(s)

Laurence DR, Bennett PN, Brown MJ. Clinical Pharmacology. 8th ed. New York: Churchill Livingstone; 1997.

b) Editor(s),compiler(s) as author

Norman IJ, Redfern SJ, editors. Mental health care for elderly people. 5th ed. New York: Churchill Livingstone; 1999.

c) Organization as author and publisher

World Health Organization. Ethical criteria for medical drug promotion. Geneva: World Health Organization; 1988.

d) Chapter in a book

Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. Hypertension: pathophysiology, diagnosis and management. 2nd ed. New York: Raven Press; 1995. p 465-9.

e) Dissertation or thesis

Kaplan SJ. Post hospital home health care: the elderly access and utilization (dissertation). St. Louis (MO): Washington Uni; 1995.

Other published material

a) Newspaper article

Lee G. Hospitalization tied to ozone pollution: study estimates 50,000 admissions annually. The Washington post 1996; June 21; sect. A: 3 (col. 5).

b) Dictionary and similar references

Student's medical dictionary. 26th edi. Baltimore: Williams and Wilkins; 1995. Apraxia; p.119-20.

Unpublished material

a. In press

Leshner AI. Molecular mechanisms of cocaine addiction. N Eng J Med (in press) 1997.

Electronic material

a) Journal articles in electronic format

Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis [serial online] 1995 Jan-Mar [cited 1996 June 5]; 1(1): [24 screens]. Available from: URL: http://www.cdc.gov/ncidod/EID/eid.htm

b) Monograph in electronic format

CDI, clinical dermatology illustrated [monograph on CD-ROM]. Reeves JRT, Maibach H. CMEA Multimedia group, producers. 2nd ed. Version 2.0. San Diego: CAEA; 1995.

C) Computer files

Haemodynamics III: The ups and downs of haemodynamics [computer program]. Version 2.2. Orlando (FL): Computerized Educational Systems; 1993.

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Illustration(s)

[Figure(s), photograph(s) etc.]

Figure(s) should be clear and legible. Illustration will be modified or recreated to conform to journal style. Photographs and photomicrographs should be clear and large enough to remain legible after the figure has been reduced to fit the width of a single column. The back of each figure should include the sequence number and the proper orientation (e.g.top). All illustrations should be referred to as figures numbered consecutively in the text in Arabic numerical.

Acknowledgement should appear at the end of the manuscripts before references.

Review and action

Manuscripts are usually examined by the editorial staff and are sent to outside reviewers. Author's suggestion regarding the names of possible reviewers is encouraged, but editorial board reserves the right of final selection.

Submission

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