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UTI causes delayed remission of proteinuria in childhood idiopathic nephrotic syndrome. UTI should be screened and treated in every chidhood idiopathic nephrotic syndrome patient.

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Sushruta, or *Suœruta* was an ancient Indian physician. He lived in India sometime between 1000 and 800 BC, and is responsible for the advancement of medicine in ancient India. Sushruta is also considered the "Father of Plastic Surgery." He was the main author of the treatise *The Compendium of Suœruta* (ca. 600 BCE) The *Suœruta Samhita* is one of the most important surviving ancient treatises on medicine and is considered a foundational text of Ayurveda. Sushruta who lived nearly 150 years before Hippocrates vividly described the basic principles of plastic surgery in his famous ancient treatise 'Sushruta Samhita'. His teaching of anatomy, pathophysiology, and therapeutic strategies were of unparalleled luminosity, especially considering his time in the historical record. He is notably famous for nasal reconstruction.

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Contents

Regenerative Medicine and stem cell research

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Tissue engineering and regenerative medicine are fundamentally based on principles of cell transplantation, cell culture, stem cell function and materials science and engineering toward the development of functional substitutes. Definitely the most physiological substitutes are from autologous cells. A tissue from the host is dissociated and expanded in culture, and the expanded cells are implanted into the same host. [1]

The expanded cells are seeded onto a scaffold synthesized with the appropriate biocompatible, biodegradable and bioresorbable biomaterial. In case of collection of autologous cells from the diseased organ of the host a tissue biopsy may not yield enough normal cells for expansion and transplantation. In these situations, pluripotent human embryonic stem cells are considered to be a viable source of cells because they can serve as an alternative source of cells from which the desired tissue can be derived.

There are two types of stem cells one is Embryonic Stem Cells which are totipotent and can develop into all cell types and can self-renew indefinitely . The second type of stem cells are Adult Stem Cells which are multipotent and can develop into a few cell types but not all. They are located in few organs or may be unidentified and hard to find.

Embryonic stem cells (ESCs), derived from the inner cell mass of the blastocyst [2] .They have the ability to proliferate in an undifferentiated but pluripotent state and the ability to differentiate into cells from all three embryonic germ layers *in vitro and transplantation of these autologous cells* would not need postoperative immunosuppression. However the use of human ES cells (hESCs), involves significant ethical limitations since it entails sacrifice of an embryo at blastocyst stage to harvest these cells. In addition there are risk of potential allogeneic immune rejection and teratoma formation of hESC-derived cells by recipients after cell transplantation.[3,4]

These limitations were addressed adequately by discovery of induced pluripotent stem cells (iPSCs), generated from adult somatic cells by forced expression of a specific set of four transcription factors(Yamanaka factors),Oct4, Sox2, cMyc, and Klf4 by Takahashi and Yamanaka in 2006.[5]

Induced hPSCs capable of self-renewal indefinitely while retaining the capability to differentiate into cells of all three germ layers, both in vivo and in vitro. These cells are very effective cell sources for many biomedical procedures in tissue engineering and regenerative medicine in spite of several safety concerns in regards to genetic and epigenetic aberrations and tumorigenesis. [6]

The ability of Induced hPSCs to restore pluripotency to somatic cells through the expression of reprogramming factors has led to fantastic achievements in manipulating human diseases at genetic and epigenetic level and offers infinite hope for regenerative medicine. However, in spite of rapid development in this field, scientists are highly concerned about the ethical limitations and potential side effects of application of stem cells in the regenerative medicine which might affect their research applications and therapeutic potential.

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Exclusive breastfeeding and its associated socio-demographic factors in Rajshahi, Bangladesh

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Abstract

Background: Promotion of proper breastfeeding practices for the first six months of life is the most cost-effective intervention for reducing childhood morbidity and mortality. However, the adherence to breastfeeding recommendations in many developing countries including Bangladesh is not satisfactory. **Objectives:** To find out the breastfeeding status in children up to six months of age and the socio-demographic factors associated with the breastfeeding practices. **Methods:** This was a cross-sectional type of descriptive study conducted at Pediatric Out Patient Department (OPD), Rajshahi Medical College Hospital, Rajshahi, Bangladesh. All the children up to 6 months of age attending with their mothers at Pediatric OPD constituted the study population. Total 354 children were enrolled in this study purposively. Data were collected by a pretested semi structured questionnaire by face to face interview of the attending mothers. Chi-square test was applied to find out the association between the breastfeeding status and the socio-demographic characteristics of the children. **Results:** A total of 354 children, only 63 (17.8%) were breastfed within one hour of their birth, 122 (34.5%) were introduced pre-lacteal feeding, 258 (72.9%) received colostrum and 215 (60.7%) were exclusively breastfed (EBF). Bivariate analysis revealed that young (p=0.0001), day labourer (p=0.0164) and illiterate mothers (p=0.0000) significantly less exclusively breastfed their babies up to 6 month. The babies of illiterate fathers (p=0.0000) and having high monthly family income (p=0.0001) were also less exclusively breastfed. **Conclusion:** Exclusive Breastfeeding practices should be improved by behavioral change communication of the parents special attention on young, day labourer and low educated mothers to keep away from prelacteal foods, initiate the breastfeeding within one hour of newborns birth and maintain EBF up to 6 months avoiding the early weaning reassuring about the sufficiency of their breast milk.

Key words: exclusive breastfeeding, socio-demographic factors, Bangladesh

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Introduction

Exclusive breastfeeding up to 6 month of age is the fundamental component of child nutrition and survival. Exclusive and sustained breastfeeding provides nutritional and immunological support for normal growth and development. Children who are not breastfed appropriately have repeated infections, grow less well and are almost six times more likely to die by the age of one month than children who receive at least some breast milk.[1] Infant mortality in developing countries is reduced by 13% through promoting exclusive breastfeeding.[2] Non exclusive breastfeeding rather than exclusive breastfeeding can increase the risk of dying due to diarrhea and pneumonia among 0-5 months old infants by more than two fold.[3] The World Health Organization (WHO) recommends the practice of exclusive breastfeeding of infants for the first six months of life after birth. Exclusive breastfeeding means that the infant receives only breast milk. No other liquids or solids are given not even water with the exception of oral rehydration solution or drops/syrups of vitamins, minerals or medicines.[4] Non-exclusive breastfeeding means that the child who has received breast milk and in addition also received milk (cow's milk, goat's milk, formula milk) and other foods including water, cereal, rice powder, suji, fruit/ fruit juice, egg, meat/fish, dal, other family foods.[5]

Traditionally Bangladesh is a bteastfeeding country. It is universal.[6] But it is not optimal. Maximum 64% of the Bangladeshi children are exclusively breastfed.[7] There are improper breastfeeding practices like introduction of prelacteal feeds, rejection of

colostrums and delayed initiation of breastfeeding, water intake during early months (within 6 months), early weaning (within 6 months).[7] In Bangladesh, 57% children were breastfed within one hour after birth, 27% of the children received a prelacteal feed and more than 11% of the children rejected colostrums.[8]

Several factors have been identified associated with exclusive breastfeeding: place of residence, infant's age and sex, mother's employment status and education level, knowledge about good breastfeeding practices, monthly family income, socio-economic position, prelacteal feeding, parity, positive attitudes towards exclusive breastfeeding, timely initiation of breastfeeding, infant's birth weight, health system practices, discarding colostrum and community beliefs.[9-12]

Over the last couple of decades, a lot of resources have been invested for implementing different health programs to enhance the optimal breast feeding practices as well as to achieve and sustain universal EBF up to 6 months of age of Bangladesh children. So it is important to see the extent of our achievement now. At the same time in this study, we also intended to identify the associated factors of EBF which will be essential for proper planning and implementation of different programs to achieve the ultimate objective i.e. universal EBF of the study population.

Methods

This study was a cross-sectional descriptive type of study conducted at Pediatric out patient department (OPD), Rajshahi Medical College Hospital. All the children up to 6 months of age attending with their mothers at Pediatric OPD constituted the study population. Total 354 children were enrolled in this study purposively. Very sick children(features of very severe disease), children with orofacial congenital defect or having neurological abnormality that hampers breastfeeding were excluded from the study. Data were collected by a pretested semi structured questionnaire by face to face interview of the attending mothers. The purpose, procedure and time required for the interview was fully explained to the attending mothers before requesting to volunteers and took written consent from them before interview. The questionnaire was designed to record the information on feeding practices of the children and their parents' socio-demographic characteristics.

The statistical analysis was performed using SPSS, version 19. Descriptive analytical techniques involving frequency distribution, computation of percentage etc were done. Chi-square test was applied to find out the association between the breastfeeding status and the socio-demographic characteristics of the children.

Results

A total of 354 children, 215 (60.7%) were exclusively breastfed (EBF) and the rest 139 (39.3%) were non exclusively breastfed (NEBF) (Figure 1). Among 354 studied children, only 17.8% were breastfed within one hour of birth, 55.1% within 24 hours and 27.1% were breastfed after 24 hours of birth. More than thirty four percent (34.5%, 122/354) of the mothers in this study introduced pre-lacteal feeding before initiation of breastfeeding. Honey was the most common (46, 37.7%) as prelacteal feed, other prelacteal feeds were sugar water (35, 28.7%), infant formula (30, 24.6%) and cow's milk(11, 9%). Of the total 354 mothers, 258 (72.9%) mothers gave colostrum to their babies.

Among 139 non exclusively breastfed children, more than 73% mothers started supplementary foods before 12 weeks (Table 1). The causes of early introduction of supplementary foods before 6 months were insufficient milk production (82.8%), working mother (10%) and illness of mother (7.2%). Of the 139 children, 71 (51.0%) children were given infant formula. Cow's milk was given in 20% children (Figure 2).

The highest percentage of the mothers were in 21-30 years old (71.2%), housewives (82.8%), educated up to Secondary school level (40.1%) and urban dwellers (74.3%) . Majority (58.2%) of the mothers had monthly family income Taka 10000 20000. More than 54% of the children's fathers were educated up to higher secondary or above (Table 2).

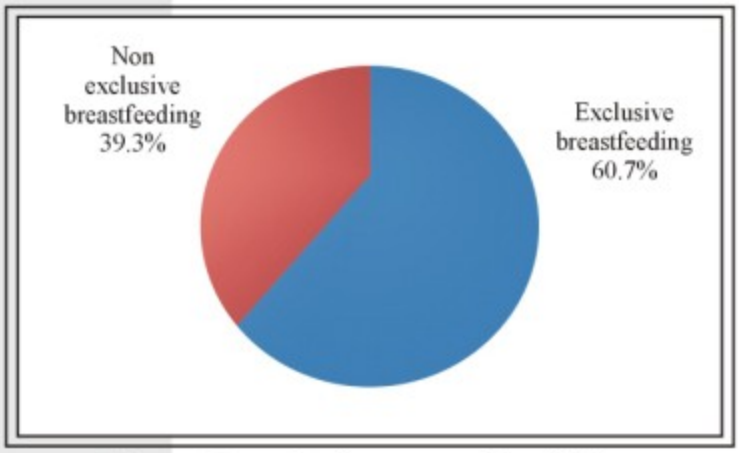

Figure1: Breastfeeding status of the children

A total of 70 teenaged mothers, 28 (40.0%) mothers exclusively breastfeed their babies. The prevalence of exclusive breastfeeding was increased to 64.3% in 21 30 years old mothers and 78.1% among the mothers > 30 years of age. The prevalence of breastfeeding was directly associated with the mothers' age (p=0.0001). Exclusive breastfeeding has a statistically significant association with maternal (P=0.0000) and paternal education level (P=0.0000). Housewife and service holder mothers were more successfully exclusively breastfed their babies than day laborers (p=0,0164). Breastfeeding status of the babies had a significant association (P=0.0001) with their family incomes. Lower income families patronized exclusive breastfeeding more than higher income families. Urban dwellers were practicing breastfeeding more than the rural and urban slum dwellers (P=0.0000) (Table 2).

Table 1: Age of starting supplementary foods before six months among non exclusively breastfed infants (n=139)

Age of starting other foods (in weeks)	Number N	Percentage (%)
0—4	51	36.7
5—8	31	22.30
9—12	20	14.4
13—16	15	10.8
17—20	12	8.6
21—24	10	7.2
Total	139	100

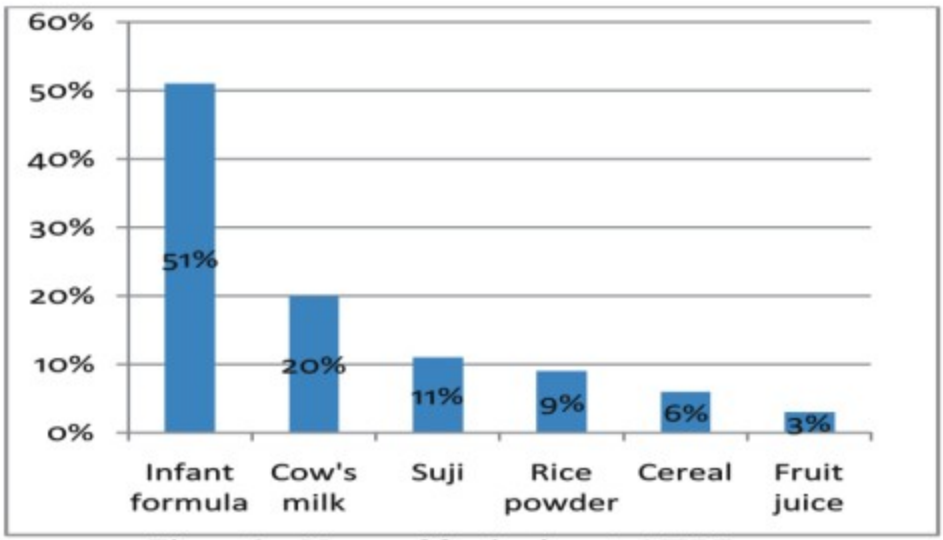

Figure 2. Name of foods given to NEBF (Non exclusively breastfed) infants

Table2 : Exclusive breastfeeding and socio-demographic characteristics

Variable	Breast feeding status		Total	Statictics	
	EBF(n=215)	NEBF(n=139)	N (%)	Chi-square	P-value
	N (%)	N (%)			
Maternal age (Years)					
<20	28 (40.0)	42 (60.0)	70 (19.8)		
21—30	162 (64.3)	90 (35.7)	252 (71.2)	18.01	0.0001
>30	25 (78.1)	7 (21.9)	32 (9.0)		
Maternal occupation					
Housewife	180 (61.4)	113 (38.6)	293 (82.8)	8.21	0.0164
Service holder (Regular salaried job)	31(67.4)	15 (32.6)	46 (13.0)		
Day labourer (Temporary, daily wage)	4 (26.7)	11 (73.3)	15 (4.2)		
Monthly family income(Taka)					
<10000	85 (72.0)	33 (28.0)	118 (33.4)	14.64	0.0001
10000—20000	119 (57.6)	87 (42.4)	206 (58.2)		
>20000	11 (36.7)	19 (63.3)	30 (8.4)		
Maternal education level					
Illiterate	12 (17.1)	58 (82.9)	70 (19.8)		
Primary	34 (37.8)	56 (62.2)	90 (25.4)	133.44	0.0000
Secondary	127 (89.4)	15 (10.6)	142 (40.1)		
Higher secondary & above	42 (80.8)	10 (19.2)	52 (14.7)		
Paternal education level					
Illiterate	12 (21.1)	45 (78.9)	57 (16.1)		
Primary	18 (60.0)	12 (40.0)	30 (8.5)	49.59	0.0000
Secondary	45 (60.0)	30 (40.0)	75 (21.2)		
Higher secondary or above	140 (72.9)	52 (27.1)	192 (54.2)		

Discussion

EBF is the best recommended infant feeding method for the first six months of life and has a protective effect against child morbidity and mortality.[1-4] But like other previous studies[7-9] the present study findings also suggested that it has not yet been universally practiced in Bangladesh. In the early 2000s in Bangladesh, the prevalence of EBF was 43%.[14] In 2011, a remarkable enhancement of it, 64% was reported in BDHS 2011.[7] Unfortunately in 2014, the prevalence of EBF was declined to 55% . However, the present study findings suggested that the downward phase of the prevalence of EBF is turned to upward in the last few years but not achieved up to the previous success in 2011.

BDHS 2014 reported that 57% of Bangladeshi children were breastfed within one hour after birth.[9] Joshi et al.[15] also had a similar observation in Mirzapur in the same year. But in this study, only 17.8% infants started breastfeeding within one hour after their birth. So further study would be needed to investigate of this inconsistency.

In this study 34.5% of the mothers introduced prelacteal feeds before initiation of breast feeding though the unique and ideal first feed for the babies, colostrums was available there. Practically colostrums alone is sufficient to maintain the nutritional demand of the newborns during prelacteal stage of the mothers without any type of prelacteal feeds.[16] At the same time introduction of prelacteal feed often resulted in "insufficient milk syndrome" and leads the newborn to the risk of infection specially diarrhoeal diseases.[17] It was the reflection of their ignorance about the nutritional value of colostrums at the one hand and the ill effect of prelacteal feeds. In this study, honey was the most common (46, 37.7%) as prelacteal feed, other prelacteal feeds were sugar water (35, 28.7%), infant formula (30, 24.6%) and cow's

milk(11, 9%). In a study, Ullah et al. observed that in rural Rajshahi 44% of the mothers introduced prelacteal feed to their babies because the mothers thought that they gave it to their babies since their breast milk was not yet produced, 29.8% of the mothers stated that they just follow others, because it was the tradition to give pre-lacteal feed, more than 10% of the mothers thought that their babies would have a good health due to this pre-lacteal foods.[8] However, mothers should be motivated to accepted the colostrum as the first food for their babies instead of pre-lacteal feeds by explaining the scientific logic and by removing their misbelieves.

Rejection of the colostrum and delayed initiation of breast feeding was a major problem of breastfeeding practices in Bangladesh. In the 80s and 90s it was reported that most of the mothers squeezed and threw away the colostrums first and then initiated breastfeeding. Only a few mothers initiated breastfeeding on the first day of delivery and majority on the third daya.[6] In contrast, in this study, more than 72% of the mothers initiated their breasfeeding within 24 hours and only 27.1% mothers squeezed out their colostrum before initiation of breastfeeding. It indicates that the situation is far improved than the 90s. Some recent studies also suggested this.[18,19]

Exclusive breastfeeding provides satisfactory calorie and nutrient requirements for the activity and growth of infants up to the age of six months,[20,21] yet in this study it was found that a remarkable portion of the mothers introduced supplementary foods to their child before that time. This suggests that either the mothers had no knowledge or trust on breast milk as unique ideal food for the infants up to the age of 6 months, or they were not aware that supplementary food acts as routes for infection. Insufficient breast milk was a most common identified reason for early introduction of supplementary foods to the infants in the study. It corresponds with the findings of other studies.[15,22] The reason for early introduction of supplementary foods by mothers is because they assumed that their milk production is not sufficient, though this assumption was not based on any scientific evidence. This problem of insufficient breast milk is more a psychological issue than a problem of mother's inability to produce enough breast milk.[16] The mother in such situation must be given reassurance that she has enough milk. Mothers should be encouraged and motivated to breast feed their babies. The health workers should discuss this problem with the mothers. The physiology of breastfeeding and its importance, and the risk factor for the infection, should be explained to them so as to convince them to continue exclusive breastfeeding up to 6 months of infant's age. The mothers should also be advised how to increase their milk production and promote child growth and development.

The findings of this study relating maternal age and exclusive breastfeeding agree well with Li et al.[23] Older mother is more often associated with exclusive breastfeeding than younger. Older maternal age may serve as an important predictor for exclusive breastfeeding. It may be that older mothers have more experience about breastfeeding due to their previous children and exposure to supportive environments.[24,25]

Previous studies[26,27] revealed that the rate of exclusively breastfeeding is remarkably higher in housewives than service holders (Regular salaried job) But the present study does not agree with this. The present study suggests that the practice of EBF in service holders (regular salaried job) and housewives are more or less same, but the practice of EBF is significantly lower among the mothers who works on daily wage basis temporary jobs (day labourer) than the former two groups. The possible explanation of this finding might be that in Bangladesh, in the last three decades there are several steps or programms have been taken to create a breastfeeding friendly environment/ workplace for the working mothers like, six month paid maternity leave, the Labour Act 2006

[28]entitles women workers to 16 weeks' maternity leave with pay, establishment of baby care centre as well as breast feeding corner in the working place.[29] These facilities are only available in formal sector which may be enjoyed by the service holders (Women have a regular salaried job). But the day labourers can not enjoy these facilities. However, It needs to further investigation.

We found that prevalence of EBF to be higher among children belonging to poorest wealth quintile than those belonging to richer wealth quintile. It is consistent with the other studies. [30,31] Mothers belonging to richer wealth quintile may have better education level, easier access to media and health services which may have increased their awareness and made them relatively more conscious about EBF.

In this study maternal and paternal education level of the children had a significant influence on the prevalence of EBF up to age of 6 month. This is similar to the finding of Jeeson et al.[32] But it is contrary about the direction of influence, because in Jeeson's study maternal education had a negative influence but in the present study it was just opposite. It is most probably therefore in Jeeson's study it may be due to effect of modernization but in this study it may be due to effect of ignorance of less educated mothers about the ill effects of prelacteal foods, the time of introduction of supplements and role of supplements as routes of disease transmission.

This study have some methodological limitations that must be taken into consideration. First, this was not a community based study, so the results might not reflect the community picture, Second, respondents were selected purposively Third, data were collected retrospectively by recall even more than 5 months.

The results of this study have certain implication for Child health promotion and protection in Bangladesh. The study findings suggest that there are many avenues to improve the breastfeeding status of the study population by motivation of the parents special attention on young, day labourer and less educated parents to avoid prelacteal foods, initiate the breastfeeding within one hour of newborn birth and maintain EBF up to 6 months avoiding the early weaning reassuring them about the sufficiency of the mother milk with some exception.

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Urinary tract infection and remission of proteinuria in childhood idiopathic nephrotic syndrome

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Abstract

Background: Nephrotic syndrome is one of the most common renal disease in childhood and infection is one of the most important complication in this disease. Infection increase the mortality and morbidity of this type of patients. Urinary tract infection (UTI) is the most common of the infections. **Objective:** To find out an association between UTI and remission of proteinuria in **childhood idiopathic nephrotic syndrome (INS). Methods:** It was a prospective study conducted in pediatric department in Rangpur Medical College Hospital. Sixty INS patients of both sex aged =12 years were included in this study. Data were collected by history taking, clinical examination, laboratory investigations and followed up. Patients were followed up till cure of UTI and remission of proteinuria. Data were analyzed by computer using SPSS for windows. Chi-square test was applied to verify an association between UTI and remission of proteinuria. **Results:** A total of 60 INS patients, 37(61.6%) patients had UTI and the rest 23 (38.4%) patients had not UTI. Remission of proteinuria occured earlier in 73% (17/23) patients of nephrotic syndrome without UTI. It was 64% (24/37) among the cases with UTI. **Conclusion:** UTI causes delayed remission of proteinuria in childhood idiopathic nephrotic syndrome. It should be screened and treated in every chidhood INS patient.

Key wards: UTI, remission of proteinuria, **idiopathic nephrotic syndrome**.

Introduction

Nephrotic Syndrome is one of the most common renal disease in childhood.The annual incidence of nephrotic syndrome in US ranging from 2-7 new cases in children under 16years per 1 lac children.[1]

Infection is one of the most important complication in childhood nephrotic syndrome.[2] The cause of infection due to: (i) Loss of plasma protein, (ii) Decrease serum immuno globulin A level, (iii) Abnormal functions of T-cell, (iv) Hypoperfusion of spleen, (v) Oedematus fluid which acts as good source of bacterial growth, (vi) Immunosuppressive drugs which are used in treatment of disease.

Of all infections in children, UTI is of special interest because of its association with vesicoureteric reflux and predisposed for long term renal damage.[3] Recurrence and sequlae are common in childhood nephrotic syndrome with urinary tract infection.[4] So UTI in nephrotic syndrome is not only the underlying cause of non response to therapy and relapse but also may induce long term renal damage.

Incidence of infection in nephrotic syndrome in more during proteinuric phase.[5] Urinary tract infection is the top of the list among these infection. Infections are commonest cause of mortality of patients. It also results in significant morbidity & poor response to steroid therapy. It causes delayed remission of proteinuria.[2] So infection is an important factor which affect the mortality and morbidity of patient in childhood nephrotic syndrome.

This study is intended to find out the association of UTI with the remission of proteinuria.

Methods

It was a prospective study conducted in paediatric department, Rangpur Medical College Hospital between July 2007 to December 2007. Sixty Idiopathic nephrotic syndrome (INS) patients of both sex aged =12 years were included in this study. Nephrotic syndrome was diagnosed according to ISKDC criteria i.e. oedema, urinary protein excretion >1gm//day, body surface area, serum albumin <2.5 gm/dl, serum cholesterol > 200 mg/dl and on heat

coagulation test urinary protein > 2+. The patient of nephrotic syndrome associated with systemic manifestation and infection other than UTI were excluded from this study. Fever, anorexia, abdominal pain, vomiting, disuria, significant pus cell (10 leukocyte count/ HPF) in microscopic examination of urine and significant growth (colony count $>10^5$ per ml of urine culture) in urine culture were considered for diagnosis of UTI.[6] Identification of the bacteria was done by standard bacteriological methods.[7,8] Antimicrobial susceptibility test was done by disc diffusion method.[8,9]

The purpose, procedure and time required for this purpose was fully explained to the patients or their legal guardians before requesting to volunteers. Data were collected by data collection sheet which was designed to record age, gender, presenting complaints like swelling of body, scanty micturation, fever and disuria by interview, general and systemic examination, and laboratory investigation through periodic followed up. Patient of nephrotic syndrome with UTI first treated with appropriate antibiotics until followed up culture revealed no growth, After that definitive treatment of nephrotic syndrome were given according to APN protocol that is initial attack 60 mg/m^2/ day for 4 weeks followed by 40mg/ m^2/ alternate day for 4 weeks. Patient were followed for cure of UTI and remission of proteinuria. Data were analyzed by computer using SPSS for windows. Descriptive analytical techniques involving frequency distribution and computation of percentage were applied. Chi-square test was applied to verify an association between UTI and remission of proteinuria.

Results

A total of 60 INS patients, 42 (70.0%) patients were <6 years and the rest 18 (30.0%) were between 6-12 years of age. Mean age of them was 5.6 years. Forty three (43.71%) of the patients were male & 17(28.4%) were female. Male and Female patients ratio was 2.5 : 1. Of the 60 patients, 37 (61.7%) patients had UTI with INS and the rest 23(38.3%) had not UTI.

Table 1. Common presentation of UTI

Clinical features	Frequency of patients N(%)
Fever	31 (83.7)
Anorexia	28 (75.6)
Pain in abdomen	21 (56.7)
Tender abdomen	13 (35.1)
Dysuria	11 (29.7)
Hematuria	7 (18.9)
Vomiting	7 (18.9)
Tender at renal angle	6 (16.2)

In the subgroup of INS patients with UTI, the most commonly complained symptoms were fever (83.8%), followed by Anorexia (75.6%), and Pain in abdomen(56.7%). Other presentations include tender abdomen, dysuria, hematuria, vomiting and tender at renal angle (Table 1).

In urine examination Of the 37 INS patient with UTI, 30(81.1%) patients had significant growth in culture, 34 (91.9%) patients had significant pus cell(10 leukocyte count/ HPF) and 12 (32.4%) patients had RBC. *Escherichia Coli* (27, 90.0%) was the commonest organisms responsible for causing bactertiuria. Others less common bacteria identified causing bacteriuria were *Pseudomonas* (2, 6.7%) and *Staphylococcus (1, 3.3%) species.* Seven (18.9%) of the 37 patients had no growth on urine culture.

More than 73% of the INS patients without UTI remitted the proteinuria within 2 weeks, but only 35.1% of the INS patients with UTI remitted the proteinuria within this time. This difference of protinuria remission between the patients with and without UTI within 2 weeks was statistically significant ($p<0.01$) (Table 2).

Table 2. Remission of proteinuria of nephrotic syndrome patients with and without UTI

Duration	Status of UTI		P value
	With UTI	Without UTI	
<2 weeks	13(35.1%)	17(73.9%)	
>2 weeks	24(64.8%)	6(26%)	<0.01
Total, n = 60	37 (61.7%)	23 (38.3%)	

Note: patients had multiple complains

Discussion

Nephrotic syndrome represents an immuno compromised state predisposing to various types of infections. Infections remain main cause of hospitalization of patients, also cause the recurrence of proteinuria, poor response to steroid therapy and even death of patients. Most common type of infection is UTI nephrotic syndromes. In this study, the association of UTI with remission of proteinuria was analyzed in INS patients.

In present study, regarding gender, male prepondence was noted, 71.6%. Male prepondence (60%) also reported by Hossain et al (1982)[10] among the INS patients admitted in Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka. But reasons from male prepondance is obscure, it is needed to investigate.

Though nephrotic syndrome may occur in any age, but childhood idiopathic nephrotic syndrome occurs mostly (80.0%) between age of 2-6 years.[11] The present study finding also agreed with this.

The prevalence of UTI among INS patients in Bangladeash and India constitutes up to 58.9% - 63.0%, which is consistent with the present study findings.[3,12,13]

In clinical presentation of UTI we had found fever in 31 (83.7%) cases, pain in abdomen in 21(56.7%) cases, dysuria in 11(29.7%) cases, hematuria in 7(18.9%) cases, anorexia in 28(79.6%) cases, vomiting in 7(18.9%) cases, tender renal angle in 6(16.2%) cases and tender abdomen in 13(35.1%) cases.

According to Srivastava and Bagga (2005)[14] common clinical presention of UTI are fever about 80%, flank pain about 40% also may found dysuria. Occasionally may found hematuria. According to Postlethwaite and Necholas (2003)[6] typical presentation of UTI are dysuria, loin pain and generalized symptoms like fever, anorexia, abdominal pain, vomiting. The present study findings is consistent with these findings.

According to Avner et al. (2004)[5] in routine urine examination found pus cell and RBC. Pus cell found in 80-90% and RBC found in 20-30 of symptomatic UTI patients. These observations are consistent with this study findings. According to Avner et al. (2004)[5] in 80% UTI patients urine culture for bacteria is positive and 20% is negative. In this study, it was also observed that 81.1% patients of UTI had significant growth in urine culture and 17% cases had not. This negativity may be due to low bacterial growth or use of antibiotics before culture.

According of Emalia Koch et al. (2004)[15] UTI may delay the remission of proteinuria in childhood nephrotic syndrome. According to report by Bernett (1981)[16] also show the infection can delay remission of poroteinuria. According to Srivastava and Begga (2005)[14] that infection cause immune dysfunction, increase filtration of protein in glomerular basement membrane and thus increase proteinuria result in delayed remission. In the current study, the direction of findings are in line with these previous reports, "UTI in INS may delayed remission of poroteinuria."

This study has some limitations. The sample size was small and follow up period was too short. So a well designed study with large sample is needed in future.

This study suggests that childhood nephrotic syndrome predisposes UTI. And the duration of proteinuria may be reduced by proper screening and treatment of UTI and thus reduce the mortality and morbidity of patients in childhood idiopathic nephrotic syndrome.

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Detection of metallo-beta-lactamase producing enterobateriaceae from wound infection in RajshahiMedical College Hospital

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Abstract:

Background: Wound infection is a common problem and a wide range of bacteria including enterobacteriaceae are responsible for it. Multidrug resistant enterobacteriaceae are greatest risk for the management of wound infection as they produce beta -lactamase enzymes which cleaves beta-lactam drugs.Metallo-beta lactamase (MBL) is a member of beta-lactamase enzymes which are produced by gene mutation due to misuse of antibiotics. **Objective**: Detection of metello-beta-lactamase producing enterobacteriaceae from wound infection. **Methods**: A descriptive type of study was carried out for the detection of MBL in the Departments of Microbiology and Surgery & its allied branches of Rajshahi Medical College and Hospital. A total 233 enterobacteriaceae were isolated and antibiogram were done from wound swabs . The enterobacteriaceae which showed resistant to both meropenem and ceftriaxone were used for the detection of MBL by double disk synergy test**. Results:** Among the enterobacteriaceae, *E.coli* 86(70.49%), *Proteus* spp. 28(51.85%), *Enterobacter* spp. 27(72.97%), *Klebsiella* 8 (57.14%) and *Providentia* spp. 3(50%), were resistant to both meropenem and ceftriaxone. Detected MBL were 66(76.74%), 19(67.85%), 21(77.77%), 7(87.50%) and 1(33.33%) from *E. coli*, *Proteus spp.*, *Enterobacter spp.*, *Klebsiella spp.* and *Provendentia spp.* respectively. **Conclusion:** Multidrug resistant enterobacteriaceae was due to production of MBL as result of mutation of genes for misuse of antibiotics without during antibiogram .

Key words: Metallo-beta-lactamase, Carbapenemase, multidrug resistant, wound Infection.

Introduction

Wound infection is a common problem in hospitals throughout the world and is caused mainly by bacteria. A wide range of bacteria including enterobacteriaceae are responsible for wound infections.Healing needs good healthy environment of the wound which can be provided with regular dressing and antibiotic therapy.[1] But bacteria can develop resistant against antibiotics by different mechanisms. One of the mechanisms is the production of beta-lactamase enzymes which hydrolyze the beta-lactam drugs like penicillins, cephalosporins, monobactum, carbapenems etc. These enzymes present in the periplasmic space of gram-negative bacteria and destroy the drugs before they bind with target structures. Enterobacteriaceae carry genes for beta-lactamase, an enzyme present in their chromosomes, plasmids and transposons.[2] Many newer beta-lactam drugs have been developed that act against beta-lactamase producing bacteria. But genes that code for beta-lactamase enzymes have mutated continuously in response to heavy use of antibiotic leading to the development of newer broad spectrum beta-lactamases.[3] Besides that intraspecies and interspecies transmission of mutant genes occur by conjugation which also contribute drug resistance.[2,4-6] These mutation mostly occur within the hospitals and surrounding environment.

Carbapenems, the newer class of beta-lactam drugs which include imipenem, meropenem, doripenem and ertapenem are stable and not destroyed by extended spectrum beta-lactamase and Amp C beta-lactamase.[7] These drugs are the choice for the management of serious hospital acquired infections caused by multidrug resistant enterobacteriaceae.[8,9] Unfortunately enterobacteriaceae again

develop resistant to carbapenems by producing metallo-beta-lactamase and other carbapenemase enzymes. In the recent year worldwide outbreak of carbapenem resistant enterobacteriaceae have been increasingly reported.[2,10,11] These enterobacteriaceae are also resistant to beta-lactamase inhibitors like clavulanic acid and tazobactam.[12,13]

Carbapenemase enzymes belong to 3 molecular classes, such as class A, B & D.[2] Class B carbapenemase enzymes use zinc at their active site and inhibited by EDTA (ethylene diamine tetra acetic acid), known as metallo-beta-lactamase (MBL). Class B carbapenemases are active on imipenem carbapenemase, Verona-Integron encoded metallo-beta-lactamase, Sao Paulo metallo-beta-lactamase, German imipenemase , Seoul imipenemase and New Delhi metallo-beta-lactamse(NDM). MBL enzymes hydrolyze all beta-lactam antibiotics and clavulanic acid except aztreonam.[14] These enzymes mainly present in *Klebsiella pneumoniae, Escherichia coli*, *Serratia* spp. and other enterobacteriaceae species.[2,15,16]

In a study at international center for diarrhoeal disease and recharch (ICDDRB), Dhaka, Bangladesh showed among 403 isolates, 3.5% were positive for MBL and predominant species were *Klebsiellapneumoniae, Acinetobacter* and *Escherichia coli.* [17] Anotherstudy in north India, showed out of 780 enterobacteriaceae, 64 isolates were phenotypically MBL producer. They also performed polymerase chain reaction (PCR)*and* 54 isolates were NDM producers which include 30 *Escherichia coli,* 12 *Citrobacter* spp. and 12 *Klebsiella* spp. with an overall occurrence of 6.9%.[18]

Carbapenemase producing bacteria can be detected by molecular or enzyme detection methods. Molecular methods are PCR, isoelectric focusing, spectrophotometry, colonic blot hybridization etc. Among them PCR is the most useful method with 100% sensitivity and specificity and time saving.[19]

Enzyme detection methods include modified hodge test or clover leaf test, double disk synergy test, disk test or disk potentiation test, EDTA-imipenem microdilution MIC test, E test MBL strip test etc. Double disk synergy tests (DDST) includes imipenem-EDTA double disk synergy test, ceftazidime-EDTA double disk synergy test, ceftazidime-1,10 phenanthroline double disk synergy test, ceftazidime-mercaptopropionic acid double disk synergy test, ceftazidime-mercaptoacetic acid double disk synergy test etc. Combined disc test or disk potentiation test includes imipenem and imipenem+EDTA combined disk test, ceftazidime and ceftazidime+EDTA combined disk test, carbapenem disk with and without a polyboronic acid test etc. Among the double disk synergy test imipenem-EDTA double disk synergy test is better and able to distinguish MBL producer from non-MBL producers . It is the most effective method for the detection of MBL producers with 77.9% sensitivity and 96% specificity.[20] The Combined disk test with imipenem & imipenem+EDTA is also very useful test and has sensitivity and specificity are 94.7%& 98 % respectively.

Now a day multidrug resistant gram negative bacteria are the greatest risk to public health. Gram negative bacteria develop resistant faster than gram positive bacteria.[21,22] There are few new antibiotics have developed and few are under process of developmenting.[23] But they may not be sufficient against gram negative bacteria to provide therapeutic cover after 10-20 years.[24,25,26] Thus MBL producing enterobacteriaceae are a challenge for wound infection management.

Methods

A total of 233 (79.79) enterobacteriaceae were isolated from 292 wound swabs in the microbiology laboratory of Rajshahi medical college during the period of January, 2014 to December, 2014. Standard method was employed for collection of swabs and cultured on neutrient agar and Mac Conkey's agar media. Enterobacteriaceae were

identified by their colonial morphology, gram staining, motility, oxidase , indole & urease production and citrate utilization tests. Sugars fermentation and H_2S production were done in triple sugar iron media. The sensitivity test was performed by modified Kirby Bauer disk diffusion method on Muller-Hinton agar media with meropenem (10g) and ceftriaxone (30g) disks. The resistant enterobacteriaceae were expressed by CLSI, 2012 recommendation. [27] The identified isolates which showed resistant to both meropenem and ceftriaxone were further tested for Metallo-beta-lactamase (MBL) production.[27,28] Metallo-beta-lactamase production was detected by double disk synergy test by putting imipenem (10g) and 10l of 0.5M-EDTA disks. The disks were placed 20 mm apart from each other on neutrient agar media and incubated aerobically at 37°c for 24 hours. The synergistic inhibition of zone indicate the production of MBL.[7,20,29]

Table 1. Resistant pattern of enterobacteriaceae against meropenem (10 µg) and ceftriaxone (30 µg) disks. (N=233)

Species	MEM resistant N(%)	CTR resistant N(%)	Both MEM & CTR N(%)
E.coli N=122	88(72.13)	113(92.62)	86(70.49)
Proteus spp. N=54	30(55.55)	44(81.48)	28(51.85)
Enterobacter spp. N=37	27(72.97)	33(89.19)	27(72.97)
Klebsiellae spp. N=14	8(57.14)	13(92.86)	8(57.14)
Providentia spp. N=6	3(50.00)	4(66.67)	3(50.00)
Total 233(100)	156(66.95)	207(88.84)	152(65.23)

C=meropenem; CTR =Ceftriaxone. Figures in parenthesis represent percentage.

Table 2. Detection of metallo-beta-lactamase production among isolates resistant to both MEM and CTR by double disk synergistic test.(N= 152).

Species resistant to both MEM & CTR	DDST N (%)
E.coli (N=86)	66(76.76)
Proteus spp. (N=28)	19(67.85)
Enterobacter spp. (N=27)	21(77.77)
Klebsiella spp. (N=8)	7(87.50)
Provindentia spp. (N=3)	1(33.33)
Total 152(100)	114(75.00)

Note: N=Number,DDST= Double disk synergy test, MEM = meropenem, CTR =Ceftriaxone

Result

Two hundred and thirty three enterobacteriaceae were isolated from 292 wound infections by culture and antibiogram was carried out to find meropenem and ceftriaxone resistant enterobacteriaceae. These resistant enterobacteriaceae were further studied for detection of metallo-beta-lactamase production which is responsible for resistant.

Table I shows resistance pattern of enterobacteriaceae against meropenem (MEM), ceftriaxone (CTR) alone and both meropenem & ceftriaxone. Out of 122 *E.coli*, 88(72.13%) & 113(92.62%) were resistant to MEM &CTR alone and 86(70.49%) were both MEM & CTR. Similarly among 54 *Proteus* spp., 37 *Enterobacter* spp, 14 *Klebsiella* spp. and 06 *Providentia* spp 30(55.55%), 44(81.48%) and28(51.85%) ; 27(72.97%) , 33(89.19%), and 27 (72.97%); 08(57.14%) , 13(92.86%) and 08 (57.14%); 03(50.00%) , 04(66.67%) and 3(50.00%) respectively. MEM resistant was less than CTR resistant when tested alone.

Table 2 shows the detection of metallo-beta-lactamase production from entrobacteriaceae isolates by double disc synergy test . Metallo-beta-lactamase was production was detected in 66(57.89%) species out of 86 resistant (MEM & CTR) isolates of *E.coli*. Similarly 19(16.67%) , 21(18.42%), 7(6.14%) and 1(0.88%) were detected from 28 *Proteus spp.*, 27 *Enterobacter spp.*,08 *Klebsiella* spp. and 03 *Providentia* spp. A total of 152(100%) different species entrobacteriaceae, 114(75.00%) species had produced MBL which was detected by DDST.

Discussion

Wound infection is a major problem in daily practice due to the emergence and spread of multidrug resistant bacteria specially enteterobacteriaceae which gaining more and more importance day by day. In this study the member of entrobacteriaceae which resistant to both meropenem and ceftriaxone were studied for metallo-beta-lactamase production by double disc synergy test and found *E.coli* was 66(57.89%), *Proteus* spp. 19(16.67%), *Enterobacter* spp. 21(18.42%), *Klebsiella* spp. 7(6.14%) and *Providential*spp. 1 (0.88%). Our study is dissimilar with the report by Haider *et al.* (2014) [30] in Uttar prodesh, India where they found *E.coli* was 36%, *Klebsiella* spp. 20%, *Proteus spp.* 8%, *Serratia* spp. 16% and *Citrobacter* spp. 20%. Dissimilarity was also reported by Naveenkumar *et al.*(2014)[29] in India where *E.coli* were 100% resistant to carbapenem. The dissimilarities may be due to the prevalence of MBL producing enteterobacteriaceae varies from country to country and also in different institution within the same country [31]. The dissimilarities may also be due to defective culture & sensitivity test, inadequate dose and duration of antibiotic used, sometimes the concentration of antibiotics may not be same as said by the pharmaceutical companies etc. Beside that other factors such as presence of geniticaly resistsnt strain, different geographical locations, environment, sanitation, habit of the patient and variation of antibiotics use in different hospitals.

We may conclude that multidrug resistant enterobacteriaceae was due to production of MBL as result of mutation of genes for misuse of antibiotics without during antibiogram. Enterobacteriaceae are the gut flora. So proper sewerage management may reduce wound infection caused by them. Antibiotic sensitivity test is mandatory before starting treatment. Every hospitals should have their own antibiotic policy, national guideline and some antibiotics should keep reserve for future use.

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Prevalence of aerobic bacterial pathogens in sepsis cases at a tertiary hospital, Bangladesh

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Abstract

Background: sepsis remains an important cause of morbidity and mortality in hospitals especially in developing countries like Bangladesh. It is one of the top 10 leading causes of death worldwide pose and great challenge in critical care. Still it is a major health problem and creates a biggest challenge for the clinicians. **Objectives:**To isolate and identify aerobic bacteria in sepsis cases admitted in Rajshahi Medical College Hospital. **Methods:** A descriptive type of cross sectional study was carried out in the Department of Microbiology, Medicine, Surgery and Obstetric & Gynae deptt. of Rajshahi Medical College and Hospital during January 2015 to December 2015 .A total of 60 blood samples were collected from clinically diagnosed cases of sepsis and cultured on conventional method using brain heart infusion broth. **Results:** Culture had yielded growth of bacteria was 23(38.3%) cases, off which *E.coli was* 7(30.5%), *Staphylococcus aureus was* 6(26.1%), *Staphylococcus epidermidis* was 4(17.4%), *Acinetobacterspp. was* 3(13%), *Klebsiella pneumoniae was* 2(8.7%), *pseudomonas aeruginosa* was 1(4.3%). Out of 23(38.3%) culture positive cases 12(52.2%) were male and 11(47.8%) were female persons. **Conclusion:** A good number of patients of both sexes were suffering from sepsis and common aerobic bacteria were responsible for it. Another good number of cases may suffer from anaerobic bacteria which are not included in this study.

Key wards: sepsis, aerobic bacteria, tertiary hospital, Bangladesh.

Introduction

The sepsis or septicemia is a serious life-threatening infection that gets worse very quickly and is often fatal. It begins from minor injury at any part of the body with many symptoms such as rapid breathing, reduced alertness or confusion, fever with chills or low body temperature, decreased urination, rapid pulse,nausea and vomiting. In other way it is asystemic inflammatory response syndrome in response to an infection, characterized by the presence of two or more features such as abnormal body temperature, increase heart rate, respiratory rate, partial pressure of CO_2 and white blood cell count[1] or it is caused by an immune response triggered by an infection. Sepsis and its complications are a common cause of mortality worldwide .Sepsis is a secondary infection from primary infection such as skin, abdominal organ, lung, brain and urinary tract infection. In hospitalized patients, it starts from intravenous implants, surgical incisions, urinary catheters, and bed sores. Beside that it also occur in people with low immune status such as very young and elderly person, recent hospitalization, diabetes, HIV infection and treatment with immune suppressive drugs.

Incidence of sepsis is approximately 18 million cases per year throughout the world[2] and common in patients who have been hospitalized . It occurs 1-2% in hospitalized and 25% in ICU patient. In the United States sepsis occurs approximately every 3 per 1,000 patients.[1]

Both gram positive and gram negative bacteria are responsible for causing sepsis .Predominant causative bacteria of sepsis are *Staphylococcus aureus, Staphylococcus epidermidis, streptococcus spp., Escherichia coli,Klebsiellapneumonie, Pseodomonas aeruginosa, Acinetobacter spp.* etc.

Once the bacteria enter into the body through any injury, it is phagocytosed and lysed by phagocytic cells of the immune system and

release peptidoglycans from gram-positive bacteria and lipo-polysaccharide or endotoxin from gram-negative bacteria. The endotoxin initiate a cascade of events which leads to syndromes of sepsis, septic shock, multiple organ failure and death.[3] Identification of the causative agents of sepsis is necessary for the diagnosis and it is usually done by blood culture. However, bacteria are present in the blood in about 30% of sepsis cases. Still now blood culture remains the gold standard for the diagnosis of sepsis.[4]

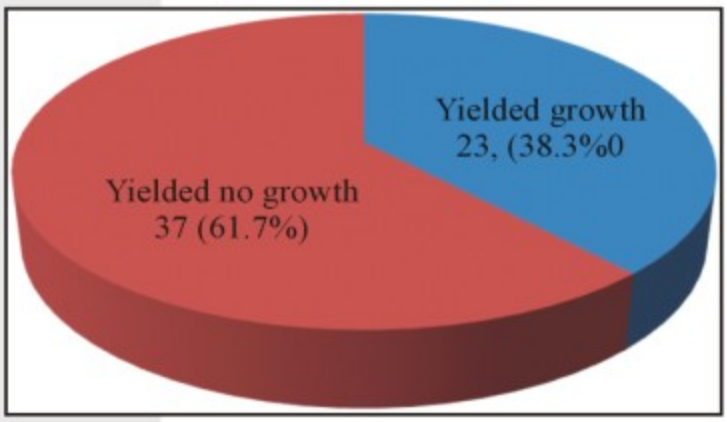

Figure1: Culture yielded growth of bacteria in sepsis cases. N=60

Methods

This descriptive type of cross sectional study was carried out in the Department of Microbiology, Medicine, Surgery and Obstetric & Gynae of Rajshahi Medical College and Hospital during January 2015 to December 2015 .A total of 60 blood samples were collected from clinically diagnosed cases of sepsis and cultured on conventional method using brain heart infusion broth. Blood samples were collected after disinfecting of the venous site with 70% alcohol and subsequently followed by povidone iodine. Under the aseptic condition 5ml of blood was drown by venipucture from two different sites and transferred into two blood culture bottles each containing 50 ml brain heart infusion broth. Routine subculture was done on blood agar and McConkey agar plate every alternative day up to 14 days. Pathogens were identified by colonial morphology and standard biochemical tests. Data were analyzed by computer using SPSS for windows. Descriptive analytical techniques involving frequency distribution and computation of percentage were applied.

Result

A total of 60 samples of blood culture of the suspected sepsis patients, 23(38.3%) yielded growth of bacteria and the rest did not yield any growth of bacteria (Figure 1).

Table 1 shows culture positive cases according to age and sexes. Male are 12(52.2) and female are 11(47.8). Male-female ratio is 1: 0.92. Maximum 9(39.2) cases are found in age groups > 55years followed by 05(21.7) in 45-54 years 4(17.4) in15-24 years3(13) in 25-34 years and minimum 2(8.7) in 35-44years.

Table 1: Age and sex distribution of bacterial culture positive sepsis cases. N=23

Age in years	Male N (%)	Female N (%)	Total N (%)
15 – 24	02(8.7)	02(8.7)	04(17.4)
25 – 34	01(4.3)	02(8.7)	03(13)
35 – 44	01(4.3)	01(4.3)	02(8.7)
45– 54	03(13)	02(8.7)	05(21.7)
>55	05(21.7)	04(17.4)	09(39.2)
Total N (%)	12(52.2)	11(47.8)	23(100)

Table 2: Identified bacteria from sepsis cases according to age. N=23

Age in years	*Escherichia coli* N (%)	*Staphylococcus aureus* N (%)	*Staphylococcus epidermidis* N (%)	*Acinetobacter* N (%)	*Klebsiella pneumonia* N (%)	*Pseudomonas aeruginosa* N (%)	Total N (%)
15 –24	3(13)		1(4.3)				4(17.4)
25 – 34	1(4.3)		2(8.7)				3(13)
35 – 44	1(4.3)		1(4.3)				2(8.7)
45 – 54	2(8.7)	2(8.7)			1(4.3)		5(21.7)
>55		4(17.4)		3(13)	1(4.3)	1(4.3)	9(39.2)
Total N(%)	7(30.5)	6(26.1)	4(17.4)	3(13)	2(8.7)	1(4.3)	23(100)

Table 2 shows identified bacteria in sepsis cases according to age. Among 23 culture positive cases, *Escherichia coli was* 7(30.5) which were found 3(13) in 15-24 years, 2(8.7) in 45-54 years and remain 1(4.3) and 1(4.3) in 25-34 and 35-44 years. *Staphylococcus aureus*was 6(26.1) among them 4(17.4) in >55 years and 2(8.7) in 45-54 years.*Staphylococcus epidermidis* are 4(17.4) and there distribution was 2(8.7) in 25-34 years and remain 1(4.3) and 1(4.3) in 15-24 and 35-44 years. *Acinetobacter spp.*was 3(13) which found only in > 55 years. *Klebsiella pneumoniae* are 2(8.7) and they are distributed as 1(4.3) and1(4.3) in 45-54 and > 55 years . *Pseudomonas aeruginosa*was 1(4.3) it was found in age group > 55 years.

Discussion

out of 60 blood samples, 23(38.3%) had yielded growth of bacteria where male were 12 (52.2%) and female were 11(47.8%), the ratio was 1:0.9. *Escherichia. coli* was the predominant (30.4%) bacterial isolate which was comparable to that reported by Ahmed *et al.*.(2002)[5] and Sharifunnahar *et al.*(2013)[6] from Bangladesh where the reported isolates were 30% and 25.80% respectively. A lower rate of isolation of *E .coli* was also observed by Amit *et al.*(2014)[7] and Nishat *et al.*(2014)[8] from India, Which were 14.98% and 13%,respectively. *Staphylococcus aureus* was isolated from 6(26.1%) cases which was similar to the study of Mustafa *et al.* (2014)[9] from India an Kochhar*et al.* (2011)[10] from Kenya, where isolated *Staphylococcus aureus* 24.1% and 27% respectively. Our study differed with the finding of sharma*et al.*(2002)[11] from india and Srinivasa *et al.*(2014)[12] from Nepal where they found 51.9%, 52.7% respectively. *Staphylococcus epidermidis* constituted about 4(17.4%).This finding was nearly similar to the study of Arora *et al.*(2007)[13] and Roy *et al.*(2002)[14] were from India and their isolation rate were 20.16% and 16.5% respectively. Higher rate of islations were reported by Alam *et al.*(2011)[15] from India where the isolation rate of *Staph epidermidis* was 63.5% *Acinetobacter spp.* was another isolate which constituted about 3(13%) of the total isolate. This study was comparable to reported by of Nishat *et al.*(2014)[8] and Arora *et al.*(2007)[13] all were from India and their reported isolates were 13% and 12.13% respectively. Higher rate of isolation reported by Alam *et al.*(2011)[15] from India where *Acinetobacter spp.* was 31%. *Klebsiella pneumoniae* was 8.7% in this study which was nearly similar to the study of Sharma *et al.*(2013)[16] in India they found 7.6% respectively. A higher isolation also observed by Mustafa *et al.*(2014)[9] in India,where they found 35% respectively. *Pseudomonas aeruginosa* was 4.3% which was similar to the study of Amit *et al.*(2014)[7]

in India where they found 5.67%, rate of islation respectively. A higher isolation rate also was reported by Alam *et al.*(2011)[15] from New Delhi and Sharifunnaher *et al.(*2013)[6] from Bangladesh, where they found 13.8% and 46.55%, isolation rate respectively. Dissimilarity may be due to improper sanitation of hospital, personal hygiene ,long time presence of persist foreign bodies such intravenous canulla, central venous lines etc.

We may concluded from this study that a good number of sepsis cases are found in different ages and both sexes. All the isolates in our study were important pathogens for sepsis but these organism also abundant in hospital environment and can be responsible for nosocomial infection.

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Primary Angiosarcoma of the Breast

Arefa Sultana[a], Shah Md Badruddoza[b]

Abstract

A 21-year woman presented with right breast mass of ten months duration, she did not complain of breast pain or tenderness. On physical examination a firm non tender mass was palpable at right upper quadrant region. Fine needle aspiration cytology (FNAC) showed predominantly blood, few endothelial like cells mimicking vascular tumor and it was confirmed as angiosarcoma after biopsy and histopathological examination.

Key words: Angiosarcoma, Rare Breast disease, Bluish skin color lesion, Lump breast.

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Introduction

Angiosarcoma of the breast is an uncommon, extremely hostile neoplasm of vascular origin. Two hundred and nineteen cases have been described [1] since the first case reported by Schmidt [2] in 1887. The frequency of this rare tumor is 0.04% of primary mammary tumors[3] and approximately 8% of mammary sarcomas.[4] Several reports have been published with different names for this malignant condition, such as hemangioendothelioma, haemangioblastoma ,haemangiosarcoma, and metastasizing angioma . This neoplasm carries a very poor prognosis, with a five-year survival of 850%. [5] Metastases derived from mammary angiosarcomas have been reported in lung, skin, liver, bone, CNS, spleen, ovary, lymph nodes and heart . [6,7]

Case report

A 21 year old female presented with left breast mass of ten months duration, she did not complain of breast pain or tenderness.

On physical examination a firm non tender mass was palpable at right upper quadrant region. It was about (10x10) cm in diameter and was not associated with lymph node enlargement. The lump was not fixed to the chest wall, not associated with nipple retraction or discharge, nor skin tethering and was associated with bluish skin color lesion.

There was no history of previous breast surgery,breast irradiation or family history of breast cancer. Ultrasound findings showed a heterogeneous hyperechogenic mass with associated architectural distortion in the upper outer region of the right breast with a diagnosis suggestive of angiosarcoma.

Routine laboratory tests on blood and urinanalysis were normal.

Fine needle aspiration cytology (FNAC) showed predominantly blood, few endothelial like cells mimicking vascular tumor, as FNAC has a false-negative rate of 1% to 35%, so it was confirmed by biopsy which was diagnostic for the angiosarcoma. Right mastectomy was performed for her, and a ill circumscribed lesion measuring (10x10x8) cm with hemorrhagic and nodular cut surface was resected. Histopathological examination confirmed it as high grade angiosarcoma (Fig.1).

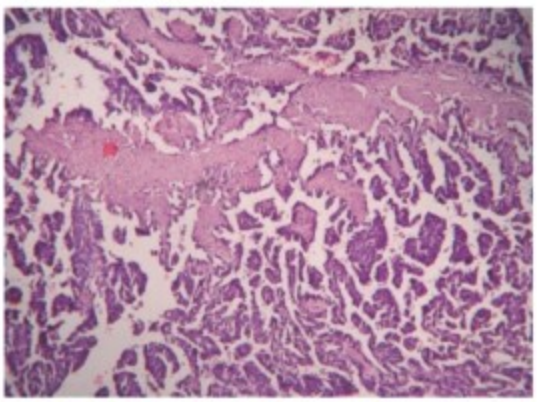

Fig.1: Histological section showing anastomosing vascular channels that invade the surrounding breast tissue (H&E X 400).

Discussion

Primary breast angiosarcoma is a connective tissue tumor that commences in the breast itself. It can be a sporadic event or related to a prior therapy. With the increasing use of breast conservation therapy for breast cancer, reports of post irradiation angiosarcoma have increased. Both primary and secondary angiosarcomas may present with bruise like

skin discoloration. Primary breast angiosarcoma is a rare type of tumor and accounts for 0.04% of all malignant breast tumors.[3]The annual incidence of mammary angiosarcoma is 5.8 per 10million women.[8] Primary angiosarcoma is diagnosed in patients who have never had breast cancer. Secondary angiosarcomas that are similar tumors occurring after breast treatment have also been reported. They occur after radical mastectomy or lumpectomy and radiation. The incidence of post irradiation angiosarcoma appears to be low, ranging from 0.090.16%.The tumor might be felt like a hard, painless mass in the breast; skin may be blue or red over the mass,and there may be some swelling and lumpiness in the area. Some patients reports feeling a tender or even painful mass, depending on the size of the tumor. This type of breast cancer is aggressive and the prognosis depends on the stage at the time of diagnosis. It can spread through blood stream to the lungs, liver, bones, and skin and to the other breast. This type of breast cancer has a high rate of recurrence. Patients with breast angiosarcoma usually have a poor prognosis, and only 10% to 27% of patients will survive this cancer about 10 year [9]. Pretreatment duration of the lesion and primary tumor size were not significantly related to the risk of recurrence or to survival. Total mastectomy is recommended for most mammary angiosarcomas [5] and surgical extirpation remains the only effective treatment.[6]

Three grades of angiosarcoma are described. Low-grade tumors consist of anastomosing vascular channels that invade the surrounding breast tissue.Intermediate-grade tumors have more solid neoplastic vascular growth and an increased mitotic rate. High-grade lesions, as in our case (Fig.-1), have frankly sarcomatous areas, as well as areas of necrosis, hemorrhage, and infarction. More than one grades may exist in the same tumor. The differential diagnosis of angiosarcoma includes metaplastic carcinoma, the acantholytic variant of squamous cell carcinoma, hemangioma and pseudoangiomatous stromal hyperplasia. Breast angiosarcoma is frequently advanced at diagnosis and has a tendency for local regional recurrence.[10]

Conclusion

The importance of this case report is that primary breast angiosarcoma is a rare disease which can often be missed or produce diagnostic difficulty or dilemma unless there is a preconception about it. Strong suspicion, related clinical findings and use of invasive and noninvasive diagnostic modalities with high level of interpretation are crucial to reach a diagnosis.

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The author should acknowledge only those people and their institutions that have made significant contributions to the study.

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