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Acknowledgements
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CONTENTS

Editorial

The 'Super-Malaria' A new intimidation In Southeast Asia

Malaria, an already dangerous and sometimes life-threatening disease transmitted by infected mosquitoes, has recently taken an even scarier turn in the form of "super malaria."
Normally an infected person would be treated with a combination of artemisinin and piperaquine, but certain malaria parasites are starting to become resistant to both drugs. Researchers declared that "the evolution and subsequent transnational spread of this single fit multidrug-resistant malaria parasite lineage is of international concern."

As of March 2017, artemisinin resistance has been confirmed in 5 countries of the Greater Mekong Sub region (GMS): Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam. In the large majority of sites, patients with artemisinin-resistant parasites still recover after treatment1. However, along the Cambodia-Thailand border, P. falciparum has become resistant to almost all available antimalarial medicines. There is a real risk that multidrug resistance will soon emerge in other parts of the subregion as well. Artemisinin resistance has occurred as a consequence of several factors: poor treatment practices, inadequate patient adherence to prescribed antimalarial regimens, and the widespread availability of oral artemisinin-based mono-therapies and substandard forms of the drug.

In late 2013, researchers identified a molecular marker: mutations in the Kelch 13 (K13) propeller domain were shown to be associated with delayed parasite clearance in vitro and in vivo.1 The molecular marker could allow for a more precise mapping and monitoring of the geographical distribution of resistance

This so-called super-malaria first emerged in Cambodia and has since been detected in Thailand and Laos, in addition to Vietnam, eventually jump to Africa, BBC reports. , complicating efforts to control the mosquito-borne parasites in Southeast Asia. Now potentially posing a global threat.

But in a recent sinister development, a single dominant artemisinin-resistant P falciparum C580Y mutant lineage has arisen in western Cambodia, outcompeted the other resistant malaria parasites, and subsequently acquired resistance to piperaquine2

Researchers fear that if the drug-resistant strain spreads to Africa, where 92% of all malaria deaths occur, it could worsen what is already a major crisis there. The World Health Organization is rallying to fight multiple-drug resistance by eradicating the disease completely by 2030. But it remains a tricky proposal for something that is evolving so fast that it may not have a cure.

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Prof. Mahmuda Hassan.
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Original article

Evaluation of Space Occupying Lesion of Liver by Fine Needle Aspiration Cytology

Sk Salowa Sultana[1], Tahmina Sultana[2], Nahid Kaizer[3], Farjana Ferdousi[4], Nafisa Rashid[5], Rezaul Karim Dewan[6], Maleeha Hussain[7]

Abstract

Objective : To determine the MIC of Imipenem against Salmonella Typhi.

Method : This interventional study done in the department of Pharmacology & Therapeutics and Department of Microbiology of Mymensingh Medical College, Mymensingh from January 2014 to May 2014. MIC of Imipenem was determined by Broth Dilution Technique against standard strain of Salmonella typhi ATCC 24683.

Result : The MIC of Imipenem against Salmonella typhi was 0.75 µg/ml.

Conclusion : Imipenem is a potential therapeutic agent for Salmonella typhi infection.

Key Words : Minimum Inhibitory Concentration (MIC), Imipenem, Salmonella typhi.

Introduction

Infections with Salmonellae can result in various clinical presentations like enteric fever, gastroenteritis, septicemia with or without suppurative lesion and carrier state. Typhoid fever is endemic in developing countries, more so in Indian subcontinent.1 Salmonella infections, especially those involving blood stream, have high mortality (about 30%). This can be reduced to about 1% with appropriate use of antibiotics.[2, 3]

Salmonella typhi and paratyphi A, B and C cause typhoid fever, while Non-Typhoidal Salmonellae (NTS) that has more than 2500 serotypes, cause gastroenteritis and invasive infections like meningitis and osteomyelitis in immune compromised patients and children.[4] Salmonella typhi is mostly acquired directly or indirectly through human feces by fecal-oral route from the diseased person or a carrier. Threat of growing resistance to antibiotics is of grave concern to human health. Resistant strains also lead to prolonged illness and more rate of complications.[5]

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Resistance of Salmonella typhi to chloramphenicol, cotrimoxazole and ampicillin developed in the 1980s. This led to an increasing use of fluoroquinolones. Gradually resistance also developed to fluoroquinolones. High prevalence of antibiotic resistant Salmonellae leads to treatment failure. Multi Drug Resistant (MDR) strains (resistant to chloramphenicol, ampicillin and cotrimoxazole) are very common. Resistance to third generation cephalosporins is beginning to emerge. Due to development of resistance, therapeutic options for treatment of typhoid and other Salmonella infections are getting limited. Outbreaks of MDR Salmonella typhi may be difficult to manage, especially in developing countries where resources are already limited. Outbreaks have been reported throughout the world especially in south-east Asia, Indian subcontinent, Africa and South America.6,7 An outbreak of MDR S. typhi in late 1990s in Tajikistan caused more than 24,000 infections.8 Hence, there is dire need to explore new avenues for treatment of resistant Salmonellae. The aim of this study was to determine MIC of Imipenem against Salmonella typhi which is not commonly used for treatment of Salmonella infections.

MATERIALS AND METHOD

The interventional study was performed in the department of pharmacology and therapeutics in collaboration with the department of Microbiology,

Mymensingh Medical College, Mymensingh during the period of January 2014 to May 2014.

Collection of antibiotic Imipenem : A Betalactum antibiotic (Injectable form), 500 mg vial was bought from local market, manufactured by Renata Pharmaceuticals LTD, Bangladesh.

Test organism : Standard reference strain of Salmonella typhi , ATCC 24683 was collected from Department of Microbiology, Mymensingh Medical College, Mymensingh.

Procedure of Experiment : Determination of MIC of Imipenem against test organisms

Technique : Broth dilution.

Preparation of stock solution of Imipenem : Five hundred (500) mg of Imipenem powder was mixed well with 500 ml of sterile DW by sterile syringe. The prepared Imipenem injection had the concentration of 500 mg in 500 ml. So, 1 ml solution contain 1 mg Imipenem. **(Stock Imipenem solution-I)** Then 1 ml of stock Imipenem solution-I was mixed with 99 ml of sterile D/W. This 1:100 dilution of stock Imipenem solution-I had the concentration of 10 µg/ml. This solution was marked as **Stock Imipenem Solution-II** which was used as stock solution for the determination of MIC of Imipenem.

Calculations :

Imipenem 500 mg + 500 ml D/W.

So, 500 mg Imipenem in 500 ml

Thus 1 ml contain 1 mg of Imipenem **(Stock Imipenem Solution-I)**

1 ml of solution+99 ml D/W(1:100 dilution).

So, 100 ml contain 1 mg = 1000 µg Imipenem

So, the concentration is 10 µg Imipenem /ml **(Stock Imipenem Solution-II)**

This stock Imipenem solution-II (concentration 10 µg/ml) was used for the determination MIC of Imipenem by broth dilution technique.

Preparation of different concentrations of Imipenem solution :

Set-I, Imipenem solution was made by adding 0.25 ml of stock Imipenem solution-II with 9.75 ml of Trypticase soya broth medium. The concentration of Imipenem in this dilution was 0.25 µg/ml.

Calculation :

1 ml of stock Imipenem solution contained 10 µg of Imipenem. (Stock Imipenem Solution-II)

So,0.25 ml Imipenem solution contain 2.5 µg of Imipenem

So 10 ml of set I preparation contained 2.5 µg of Imipenem

And thus 1 ml of set I preparation contained 0.25 µg of Imipenem

Set-II, Imipenem solution was made by adding 0.5 ml of stock Imipenem solution-II with 9.5 ml of Trypticase soya broth medium. The concentration of Imipenem in this dilution was 0.5 µg/ml.

Similarly, Set-III, IV, V and VI of Imipenem solution respectively were made by adding measured amount of stock Imipenem solution-II with measured amount of broth medium. The concentrations of Imipenem were 0.75 µg/ml, 1 µg/ml, 1.5 µg/ml and 2 µg/ml respectively: (Table 1).

Control - 1 was made with 10 m1 of Trypticase soya broth medium (to be inoculated with bacterial suspension) in test tubes.

Control - 2 was made with 10 m1 of Trpticase soya broth medium (no inoculation with bacterial suspension) in test tubes. (Table 1)

TABLE : 1

Composition and different concentrations of working Imipenem solutions and the controls:

No. of Sets	Stock Imipenem solution-II (ml)	Tryticase soya Broth media (ml)	Total (ml)	Concentration of Imipenem (µg/ ml)	Test organism (µl)
I	0.25	9.75	10	0.25	20
II	0.5	9.50	10	0.5	20
III	0.75	9.25	10	0.75	20
IV	1	9	10	1	20
V	1.5	8.5	10	1.5	20
VI	2	8	2	2	20
VII	Control-1	10	10	-	-
VIII	Control-2	10	10	-	2

With each 10 ml preparation except control-1 (set VII) 20 µl bacterial suspensions were added after matching its opacity with that of 0.5 McFarland Standard.

Inoculation of bacterial suspension to different concentrations of stock Imipenem in test tubes : After matching the turbidity of bacterial suspension with 0.5 McFarland standard, 20 µl or one drop (0.02 m1) of bacterial suspension of Salmonella typhi. These inoculums were also added to the control -2 except Control-1.

Incubation : The test tubes were marked set wise with black marker and were placed in the incubator at 37 0 C for 18 -24

hours.

Examinations of test organisms in different dilutions and concentrations of Imipenem : After 18 to 24 hours of incubation at 37°C, the growth of test organisms in each preparations of Imipenem were examined and compared against that of controls by matching their turbidity. The clear preparations were considered as no growth of bacteria and turbid ones, as growth of bacteria. The MIC was reported as lowest concentration of Imipenem required to prevent the visible growth of test organisms. The observations and results of the experiment were shown in table-2

Subculture of materials from effective dilutions of Imipenem in MacConkey agar media : The materials from last two sets of growth and all sets of no growth of Imipenem preparations were sub cultured in the pure MacConkey (solid) media plates (without any and antibiotic mixed with the media). After 18 to 24 hours of incubation at 37°C, the growth of test organisms were examined.

Observations and results :

Table-2 shows visible growth of Salmonella typhi observed at Set-I to Set-II. But the organisms failed to grow at Set-III to Set-VI. So the minimum inhibitory concentration (MIC) of Imipenem against Salmonella typhi was in 0.75µg/ml. Table-2 also showed **control -1** containing Trypticase soya broth medium without any bacterial inoculam had no visible growth and **control -2** containing Trypticase soya broth medium with bacterial inoculam observed their visible growth. **Result of Experiment :** The MIC of Imipenem against Salmonella typhi was 0.75 µg/ml at set II.

Table 2 : MIC of Imipenem against Salmonella typhi

No of Sets	Concentration (µg/ ml)	Salmonella typhi
Set-I	0 .25	Growth
Set-II	0.5	Growth
Set-III	0.75 (MIC of S. typhi)	No Growth
Set-IV	1	No Growth
Set-V	1.5	No Growth
Set-VI	2	No Growth
Set-VII	Control-1 (Tryticase soya broth + No bacteria inoculation)	No Growth
Set-VIII	Control-2 (Trpticase soya broth+ Bacterial inoculation with no antibiotic)	Growth

Discussion

The study was conducted during the period of January 2014 to May 2014 in the department of Pharmacology and Therapeutics with the collaboration of Department of Microbiology, Mymensingh Medical College, Mymensingh to determine the MIC of antibiotic Imipenem against standard strain of Salmonella typhi. It was an interventional study. The MIC of antibiotic Imipenem was determined by broth dilution technique. The stock solution of Imipenem was made. Then the working solution of various concentrations was made by dilution the stock Imipenem solution. The concentrations were 0.25 µg/ ml, .5 µg/ ml, and 0.75 µg/ml, 1 µg/ml, 1.5 µg/ml, and 2 µg/ml. The MIC of Imipenem against Salmonella typhi was 0.75µg/ml. A near similar type of study was done at Department of Pathology and Microbiology, Aga Khan University Hospital, Karachi, Pakistan where the investigators found the MIC of Imipenen against Salmonella typhi is 0.5 µg/ml9 which is nearer to our study. Another study was done at Nepal where the MIC of Imipenem was determined against MDR Salmonella spp where the MICs varies 2-8 µg/ml in respect of species.[10]

Conclusion

From the study it is evident that the MIC of Imipenem is much lower than other Salmonella sensitive antibiotics like Ciprofloxacin and Azythromycin. Due to indiscriminate and irrational use of antibiotics for years developed antibiotic resistance. So we should highly cautious about the use of Imipenem as it is a potential therapeutic agent and its use should be restrict on the basis of blood culture and in MDR cases of typhoid fever only.

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Original article

Serum fasting blood glucose status in nursing mothers

Khadiza Begum[1], Rokeya Begum[2], Masuma Tasnim[3], Sharmin Jahan[4], Nahid Yasmin[5]

Abstract

Background : There is an association between breast feeding & maternal blood glucose status. Breast feeding improves maternal blood glucose status & may reduce the risk of developing type 2 diabetes.

Objective : To observe Serum fasting blood glucose level in lactating & nonlactating mother.

Method : This cross sectional analytic study was conducted in the Department of Physiology, Dhaka Medical College, during the period of July 2010 to June 2011. A total 300 subjects were included within the age limit from 20 to 40 years of women. Among them100 were normal healthy subjects & had child above 3 years were considered as group A (control). The rest 200 women were selected as study subject (group B) having child between the age 6 weeks to 2 years. Group B is again subdivided into group B1 (100 lactating mother) & group B2 (100 nonlactating mother). The subjects were selected from pediatric ward & OPD of pediatrics, DMCH and BSMMU, Dhaka. The study parameter is serum fasting blood glucose was done in the Department of Physiology, Dhaka Medical College.

Results : Serum fasting blood glucose level in group B1 was lower from group A and in group B2 was significantly higher than that of group A. These values were significantly higher in nonlactating mother than lactating mother. It was observed that high level of study parameter were more in B2 than that of group B1.

Conclusion : From the results of the present study it may be concluded that lactation has effect on lowering serum fasting blood glucose.

Key words : Lactation, diabetes, serum fasting blood glucose.

Introduction

Breast feeding is the preferred method of feeding infants up to first 12 month of age[1]. Breastfed infants experience fewer & less severe infections and may be protected against future disease development[2]. Mothers who breast feed potentially experience accelerated weight loss, lower risk of development of breast and ovarian cancer[3], improves metabolic status[4], lower risk of type 2 diabetes[5] or the metabolic syndrome in later life than nonlactating mother[6].

Type 2 diabetes mellitus affects about 9 million adult women in the United States. This disease and its complications impose a considerable burden on the health care system[7]. Multiple lifestyle factors, including diet, exercise and obesity are associated with risk of diabetes[8].

Pregnancy is a critical period for weight gain and obesity in women[9]. There is physiological insulin resistance has been observed in the last trimester of gestation. Which possibly increase glucose utilization by placenta and fetal tissues[10-12]. Insulin resistance could also increase insulin bio-availability for mammary tissue which regulates mammary gland lipoprotein lipase enzyme[13].

Lactation imposes a substantial metabolic burden on mothers, with an increased requirement of approximately 480 kcal/ d[14-16]. Both human studies and animal models have demonstrated improved insulin sensitivity and glucose tolerance during lactation compared with nonlactating mothers[17,18].

Many investigators of different countries studied metabolic syndrome by measuring the fasting blood glucose, serum insulin and insulin resistance in lactating & nonlactating women. They found that lactation has effect on insulin & glucose homeostasis. lactating women had significant lower fasting glucose levels and insulin level among lactating versus nonlactating women. They also found improved glucose metabolism with recent gestational diabetes compared to nonlactating women[15,19] .

Some author found that breast-feeding history was inversely associated with insulin resistance, independent of obesity[9,20] .

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Another study said that long term breastfeeding has more of a delaying effect than a prevention effect on diabetes, especially in women with very strong risk factors for the diabetes. Another interesting finding was that the longer the period of exclusive breast feeding per pregnancy, the greater the effect against diabetes[21,22].

The American Academy of Pediatrics recommends that all infants should be exclusively breast feed through 6 months of age and that breastfeeding should continue until the infant is 1 year of age. Although 80% of US women initiate lactation, only 36 % report breast feeding and 14% report exclusive breast feeding their infants at 6 months of age 2.

Bangladesh is a country usually noted for prolonged breast-feeding. A research work found that 60% of infants were being exclusively breast-fed and 30%, predominantly breast-feed at the time of discharge from hospital. After 2 weeks at home, 75% of the mothers were breast-feeding exclusively but 25% of mothers failed to continuing exclusive breast-feeding, despite of having been counseled during their hospital stay[3].

Lactation has effect on lowering Serum fasting blood glucose level. Present study will provide us knowledge about beneficial effect of breast feeding on maternal health, which will increase the public awareness of breast feeding among nursing mothers.

Methods

This cross sectional analytic study, was carried out in the Department of Physiology, Dhaka Medical College, Dhaka from July, 2010 to June, 2011. A total 300 female subjects were included within the age of 20-40 years. Group A (control): Consists of 100 apparently healthy, non gravid & nonlactating mother having child of age above 3 years or mother not in lactation period (to compare with study group).

Group B (study group): Consists of 200 female subjects having baby between 6 weeks to 2 years or mother in lactation period but not in purperium (the period of purperium is avoided as most of the physiological changes during pregnancy revert back to normal with in this period) Group B is again divided into group B1: 100 lactating mother, B2: 100 non lactating mother. All subjects were selected from the pediatric indoor & out door, of Dhaka Medical college Hospital and from BSMMU,Dhaka. All the subjects belonged to middle socioeconomic status. Pregnant mother with baby below 2 years or mother having adopted child or mother having baby<6 weeks (as it is the period of puerperium) were excluded from the study. Mothers with heart disease, liver disease, kidney disease or any endocrine disease like thyroid disease were also excluded. After selection of subjects the purpose of the study was explained to each subject and encouraged for their voluntary participation. They were also allowed to withdraw themselves as soon as they wish. Ethical clearance was taken from ethical review committee of Dhaka Medical College. Data were collected in a predesigned questionnaire after taking informed written consent of the subjects. All the subjects were requested to be empty stomach before giving blood sample. Before taking blood sample an informed written consent was taken from each subject. Then blood was collected and fasting blood glucose was measures by using portable glucometer. statistical analysis were done usuing computer with SPSS version 17.

Correlation was analyzed by Pearson's correlation test. Unpaired Student's 't' test was performed to compare between groups. The test of significance was calculated and p values<0.05 was accepted as level of significance.

Results

Fasting blood glucose

The mean (± SD) fasting blood glucose were 96.08 ±16.24, 93.76 ±11.57 & 113.45 ± 32.51 mg/dl in group A, B1 & B2 respectively. Fasting blood glucose level in lactating mother was lower than that of control group but was statistically not significant. In case of nonlactating mother the level was higher than that of control as well lactating mothers, both were statistically highly significant (p< 0.001).

The mean (±SD) duration of lactation of the child are 11.99±6.88 & 3.42 ±1.68 months in group B1 & B 2 respectively.

The duration of lactation of the child in lactating mothers was higher than that of group nonlactating mothers & was statistically highly significant (p<0.001).

When correlation was done between the fasting blood glucose level & mean duration of lactation it showed negative correlation (r= -0.212) in lactating mothers but positive correlation(r=+0.195) in nonlactating mothers. But the relation was statistically not significant in both cases.

From the frequency distribution we can see more

nonlactating mothers show high level of fasting blood glucose than others groups.

Table–I :

Fasting blood glucose in different groups (n=300)

Groups	n	Fasting blood glucose (mg/dl) (Mean±SD)
A (Control)	100	96.08±16.24
B_1 (Lactating mother)	100	93.76±11.57
B_2 (Nonlactating mother)	100	113.45±32.51
Statistical analysis		
Groups		Fasting blood glucose (p value)
A vs B_1		0.246ns
A vs B_2		0.0001***
B_1 vs B_2		0.0001***

N = Number of subjects ns = Not significant

***= Significant at P<0.001

Table–II :

Duration of lactation in lactating and nonlactating groups(n=200)

Groups	n	Duration (months)(Mean±SD)
B1		
B2	100	
100	11.99±6.88	
3.42±1.68		
Statistical analysis		
Groups		
B1 vs B2		Duration (p value)
		0.0001***

Fig : 12
Frequency distribution of subjects by fasting blood glucose in different groups

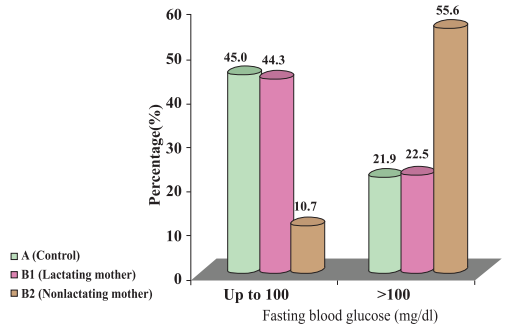
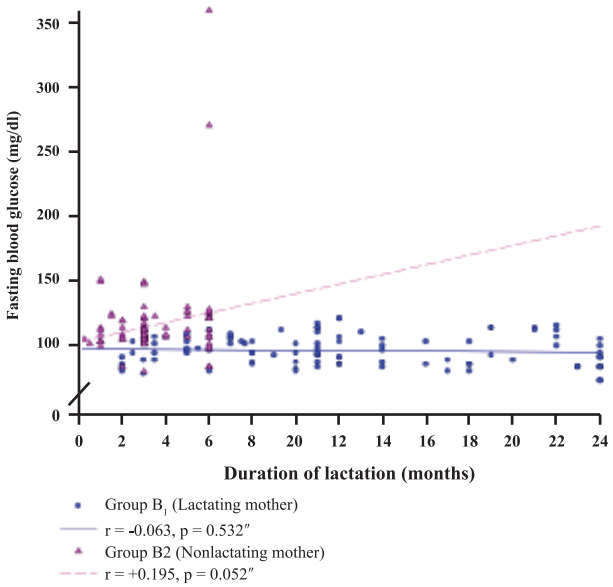


Fig : 20
Correlation between duration of lactation and fasting blood glucose in group B_1 and B_2



Discussion :

The present study was carried out to observe serum fasting blood glucose in lactating(group B_1) & nonlactating mother (group B_2) and also in age matched apparently healthy adult female who are not in lactation period (group A) for comparison.

Distributions of the parameter was observed among the groups &was also correlated with duration of lactation in both study groups to observe any relationship with the duration of lactation.

In the present study, findings of all the parameters in healthy subjects or baseline control group were almost within normal range and also similar to those reported by the other investigators from different counties[11,12,7]. However no published data of the study parameter of lactating mother are available for comparison in our country.

In the present study serum fasting blood glucose level of lactating mother was nonsignificantly lower than that of control subjects. FBG level in nonlactating mother was significantly (p<0.001) higher than control subjects. Lactating mothers showed significantly lower level of FBG than nonlactating mothers. Fasting blood glucose level showed negative correlation in lactating mother &

positive correlation in nonlactating mother with duration of lactation. Fasting blood glucose > 100 mg/ dl were observed in 33(21.9%), 34(22.5%), 84(55.6%) subjects in group A, B1, B2 respectively.

Similar type of findings were reported by some authors they found that insulin levels & insulin: glucose ratios were significantly lower in lactating mother than nonlactating mother. They suggest that independent of body adiposity breast feeding has long lasting protective effect on lowering fasting blood glucose level[18,20,21,22].

Some investigators found significantly lower fasting glucose & insulin levels in lactating than nonlactating women at 8 week postpartum. They also found that prevalence of type 2 diabetes was half in lactating than nonlactating group[20, 22]. This is due to preferential use of glucose by mammary gland. These study are also in agreement with the present study.

Some other stated that lactation has beneficial effect on glucose tolerance to women with history of GDM. They also suggested that lactation has post weaning effect on maternal metabolic profile[15,16].

On the other hand some found that duration of lactation was inversely associated with risk of type 2 diabetes in young & middle aged women by improving glucose homeostasis[23]. This study is in agreement with the present study.

During lactation body weight decreases as lactation alters maternal fuel metabolism and increases energy expenditure by 15-25%. About 400 – 500 Kcal /day required for milk production during the first 6 months for exclusive breastfeeding[20] .

Persistent of Pregnancy related metabolic change in fat distribution specially central adiposity is of greater importance than over all obesity, because intra abdominal (visceral) fat may associated with development of obesity related insulin resistance and production of adipocytokines that regulate insulin sensitivity[20]. Excess adipose tissue releases several products that apparently exacerbate metabolic risk factors. They include nonesterified fatty acids (NEFA), cytokines and adiponectin. A high plasma NEFA level overloads muscle and liver lipid, which enhances insulin resistance[24] .

After parturition there is change from overall insulin resistance to insulin sensitivity. Low insulin levels lead to increase fat mobilization and transfer to the mammary gland. Insulin stimulates glucose and lipogenesis and controls mammary gland lipoprotein lipase. As a result lactating women exhibit lower blood glucose & insulin concentrations along with higher rates of glucose production and lypolysis compared with nonlactating women[17,18] .

Conclusion

Lastly it can be concluded that lactation increases metabolic demand & thus has significant effect in lowering fasting blood glucose level. Further studies can be done in gestational diabetic mothers to see the effect of lactation on FBG.

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Original article

A Comparative Study between Closure and Non-Closure of Peritoneum following Vaginal Hysterectomy

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Abstract

Objectives : The practice of closing and non closing of peritoneum after vaginal hysterectomy is still debatable. Objective of this study was to evaluate the clinical outcome of a patient who undergo vaginal hysterectomy with or without peritoneal closure.

Materials and Methods : The prospective study was conducted in the department of obstetrics and gynaecology, Shaheed Ziaur Rahman Medical college & Hospital, Bogra during the period of January 2008 to December 2009. A total of 100 cases, 50 closure and non closure of peritoneum were included.

Results : Mean operation time in closure group was 78.76 minutes and SD was 6.15; in non closure group was 72.10 minutes the SD was 6.09. Patient with non closure group resumed their bowel function earlier than that of the closure group(P=0.001), it is due to reduced operation time, less handling during operation and shorter duration of exposure to anesthesia. Hospital stay was significantly reduced in non closure group. postoperative complications were present in 12 patients of closure group and 8 patients of non closure group. Febrile illness was less in non closure group 2(4%) compared with closure group 4(8%). Urinary tract infection are equally common in both groups, micturation disorder and readmission were absent in both groups, postoperative haemorrhage and transfusions were same in both groups. In non-closure technique, the expenditure of operation was less than closure technique as less suture material was used in this technique (P=0.000).

Conclusion : The data of the study supports the conclusions regarding non closure of the peritoneum after vaginal hysterectomy.

Key wards : Vaginal hysterectomy, closure and non closure of peritoneum.

Introduction

There are various approaches to the surgical removal of the uterus; abdominal hysterectomy, laparoscopically assisted vaginal hysterectomy and vaginal hysterectomy. Vaginal hysterectomy is the second most common gynaecological operation. In developing countries genitourinary prolapsed are more common than others. Vaginal hysterectomy results in better quality of life outcomes compared with abdominal hysterectomy; i.e. lower morbidity and quicker recovery[1].

Of the procedure and to provide clinical opinion, closure of peritoneum associated with a slightly longer operating time and most post operative pain and there are some suggestions that's it might cause more adhesion formation. There are more advantages than disadvantages of nonclosing the peritoneum. Clinicians are encouraged not to close both parietal and visceral peritoneum[2].

Closure of peritoneum at vaginal hysterectomy is traditionally considered a necessary and important procedure[3, 6, 9-11]. The surgical step is further thought to prevent later enterocele and prolapsed of the vaginal vault[3,6,9]. Finally, the peritoneal closure and extra-peritoneal sitting of the pedicals is believed to be crucial to avoid infection and intra-peritoneal haemorrhage[10]. Clinical studies demonstrating these benefits, however, are still missing. Experimental data on peritoneal healing indicate that suturing the peritoneum does not promote wound strength- it may, in fact, induce short term effects of the non-closure of the peritoneum at vaginal hysterectomy[11].

The commonest complication associated with vaginal hysterectomy is secondary hemorrhage which is seen in 34-59% of cases[12,13]. It increases febrile morbidity, need for blood transfusions, longer hospital stay and higher readmission[13].

According to some other researchers[3,16], it was found that non-closure of the peritoneum was related neither to a

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higher short-term morbidity nor to an increased rate of postoperative complications. Hirsch et.al (1995) showed that non-closure of the peritoneum is safe.

According to the study done by Cheong et. al(2001). Bajeka 1 N14, non-closure of peritoneum reduces operating time. In their series, They have shown rapid healing of unsutured peritoneum with minimal adhesion formation[6,15,17,18]. The presence of sutures on the other hand, may favours adhesion formation and related problems.

Cheong et.al (2001)14] conclude that non-closure of the peritoneum is safe in vaginal hysterectomy with an apparently beneficial effect on bowl function. Further clinical trials are needed to investigate the long-term effects or benefits of non-closure of the peritoneum at vaginal hysterectomy, Cheong et.al (2001) mentioned [14].

Material and Method

This cross-sectional comparative study was conducted in the Department of the Obstetrics & Gynaecology, Shaheed Ziaur Rahman Medical College & Hospital, Bogra during the period of January 2008 to December 2009. In this study 100 cases, 50 peritoneum closure and 50 peritoneum non-closure.

Selection Criteria

Inclusion criteria: All women undergoing vaginal hysterectomy including vaginal repair or urinary incontinence surgery.

Exclusion criteria : Genitourinary Prolapsed with any pelvic tumour.

Data collection

Data was collected from the women who are undergoing vaginal hysterectomy admitted into the department of gynaecology by taking history, physical examination, routine investigation, follow up at 2nd weeks and 6th weeks after operation and also complication if any.

Statistical analysis

Collected data were analysed using computer based software SPSS-12 for windows.

Methodology

The study itself involves recording information only and invasive investigation. However a written informed consent would be obtained from all patients or attendant. . Detailed history of the patients with particular attention to the operative details, post operative course, hospital stay and follow up after 2nd weeks and 6th weeks were recorded.

Women admitted for vaginal hysterectomy were randomly allocated. After proper history taking, a through clinical examination was performed. The technique of operation used for each patient was selected randomly. Among them 50% of the patients were peritoneum closed after vaginal hysterectomy. Remaining 50% of the patients were non-closure of the peritoneum after vaginal hysterectomy. A vaginal incision was employed in all cases which was inverted "T" shaped. After removal of uterus all clumps were sutured by vicryl 1. Peritoneum of the 50% patients were closed by 1/0 catgut, rest of the patients remained open. Cut margin of the vagina were sutured by vicryl 1/0. Parameters were recorded during operation-total time of operation, number of suture material used, any complication like excessive bleeding and parameters during post operative period - resumal of bowel sound, severity of pain in the wound, demand for post operative analgesics. Statistical analysis was done with the statistical package for social sciences (SPSS) version 12. Analytic comparisons used the unpaired students t-test, X2 test and ANOVA test. $P<0.05$ considered significant.

Observation and Results

Statistically analysis compared the characteristics and variable of the patients in whom vaginal hysterectomy was performed non peritonization technique with those of 50 patients in whom operation done by peritonization technique.

Table-1 : Demography of women who underwent vaginal hysterectomy

Demography of women		Closure	Non-closure
No. of patients		50	50
Age (years)*		56.14± 7.83	57.76 ± 5.83
Parity	(1-3)	18	15
	(>3)	32	35
Presence of	DM	7	8
medical disorder	HTN	17	15

*No. corresponds to median value±Standard Deviation

The characteristics of women undergoing two groups of operation, namely Closure and non closure group are shown in table-1. Mean operation time in closure group was 78.76 minutes and SD was 6.15; on the other hand the

mean time of non closure group was 72.10 minutes the SD was 6.09.

Table-2 : Preoperative course of two groups of patients

	Closure	Non-closure	P Value
No. of patients	50	50	
Operation time (minutes)*	78.76±6.15	72.10± 6.09	0.001
Estimated blood loss(Hb% difference in gm/ dl) **	1.20 / 0-2	1.15 / 0-2	

Suture materials	Closure group (n=50)	Non-closure group (n=50)	(P value)
Vicryl 1	2.90 ± 0.51	2.90 ± 0.51	-
Vicryl 1/0	1.18 ± 0.39	1.18 ± 0.39	-
Catgut 1/0	1.00 ± 0.00	0.00	0.000
Return to bowel movements (days) ***	2.48± 0.67	2.04 ± 0.66	0.001
Hospitalisation period (days)***	7.04± 1.18	6.48 ± 0.67	0.01

* Time corresponds to median value

** Median / range

*** Median value and standard deviation

Table-2 shows blood loss which measured by Hb%. Patient with non closure group resumed their bowel function earlier than that of the closure group. In closure group M=2.48±0.67 and non closure groups M=2.04±0.66, P=0.0012, which is highly significant and it is due to reduced operation time, less handling during operation and shorter duration of exposure to anaesthesia. Hospital stay was significantly reduced in non closure group due to early return of bowl function.

Table-3 : Post operative complication

Complication	Closure (n= 50)	Non-closure (n= 50)
Fever	4 (8%)	2 (4%)
Urinary tract infection	2 (4%)	2 (4%)
Micturation disorder	0 (0%)	0 (0%)
Haemorrhage	3 (6%)	2 (4%)
Transfusion	3 (6%)	2 (4%)
Readmission	0 (0%)	0 (0%)

Table-3 shows postoperative complications were present in 12 patients of closure group and 8 patients of non closure group. Febrile illness was less in non closure group 2(4%) compared with closure group 4(8%). Urinary tract infection are equally common in both groups, micturation disorder and readmission were absent in both groups, postoperative haemorrhage and transfusions were same in both groups.

Table 4 : Demand for post operative analgesics

Analgesic doses of Injection	Non-peritonization technique group(n=50)	Peritonization technique group(n=50)	Significance (P value)
Pethidine (mg)	77.78 ± 11.56	75.45 ± 14.69	NS
Range	50-100	50-100	0.358
Diclofenac Na(mg)	1.37 ± 145	4.46 ± 1.29	0.000***
Range	0-4	2-6	

Analytic comparison used the paired student "t" test. Values are shown as mean ±SD. P<0.05 considered significant. *** Highly significant, NS- Not significant

Table 5 : Requirement of suture materials

In non-closure technique, the less suture materials were required than closure technique.

Table-6 : Cost of operation

Cost Involved	Closure group(n=50)	Non-closure group(n=50)	P value
Expenditure in Taka	1720 ± 153.18	1550 ± 151.52	0.000

In non-closure technique, the expenditure of operation was less than closure technique as less suture material was used in this technique and it is highly significant.

Discussion

Major gynaecological surgeries are now widely performed in many referral hospitals in our country. This study was carried out on the operated patients in gynae and obs. Department of Shaheed Ziaur Rahman Medical College and hospital, Bogra, during January 2008 to December 2009. It is a prospective type of study. Aim of this study was to critically analysis the advantages of

vaginal hysterectomy with or without closure of peritoneum.

Non-peritonization technique during vaginal hysterectomy is the result of a very careful critical assessment of each surgical step, aiming at eliminating everything that superfluous senseless and even detrimental and at improving the safety simplicity efficiency of operation.

The most important aspects reviewed are operation time estimated blood loss, requirement of suture materials, resume of bowl function and demand for post operative analgesics, fibrile illness and other post operative complications.

Like others we found that non-closure of the peritoneum was related neither to higher short term morbidity nor to an increased rate of post operative complications. We believe that non-closure of peritoneum is safe.

A significantly faster resumption of bowl function occurred in sample vaginal hysterectomies when the peritoneum was left open. We made a similar finding in a

previous ceasarian section study.

In this study the mean operation time was significantly shorter in non peritonization technique group than in peritonization group (78.10 ±6.15) ($p<0.001$).This comparison of operation time also correlates with studies.

The decrease in operation time was associated with non closure of peritoneum than closure of the peritoneum. It was associated with less anaesthesia time and less time that the wound was exposed environmental contamination, its potential economic benefit include decreased anesthesia suture costs, personal time and expense.

In present study patients of vaginal hysterectomy by non peritonization technique (2.04 ±0.66) resume their bowl function earlier than the peritonization technique group (2.48 ±0.67) $p=0.001$ and it is statistically significant. Patient in non-peritonization group resume their bowl sound earlier probably due to shorter operation time, less handling during operation and shorter duration exposure to anesthesia.

In this series women in non-peritonization group (Mean-77.78 ±SD-11.56) had experienced significant less pain than in peritonization group, (Mean-75.45 ±SD-14.69). This is because no tension is place on the peritoneal wound edges as they were not sutured in non-peritonization group. There were also significant differences in the analgesic doses (Inj. Diclofenac Na) between two groups The number of injection used in non peritonization technique group was reduced to1.37±1.43 compared with peritonization technique group 4.46 ±1.29 doses ($P=0.000$).

In this series postoperative fever in non-peritonization group 2 (4%) & peritonization group 4(8%) did not differ significantly between the two groups. In peritonization technique group post operative fever was higher than in the non peritonization group but it is not significant.

In this study, the mean length of hospital stay in peritoneum open group was 6.68 ± 0.67 days and in peritoneum close group it was 7.04 ± 1.18 days $p<0.001$. So there was no significant difference as regard to hospital stay. Some patients in peritoneum open group wanted to leave the hospital earlier as experienced less post operative pain and other morbidity but they are not discharged earlier as they were under study. During follow up after two and six weeks, there was no significant difference as regards their present complain.

Recently, Miskry and Magos (39) presented a technique of mass closure of the vault at vaginal hysterectomy .With this technique, the peritoneum and the vault are closed simultaneously. The authors advocate this modification for the obliteration of the space between peritoneum and vagina. They expect advantages in terms of haemostasis, lower risk of vault haematoma and post operative cuff infections. They reported a fever rate of 6% and it was found 8% in this investigation.

Conclusion

The data of the study supports the following conclusion regarding non-closure of the peritoneum of the peritoneum after vaginal hysterectomy,

1. It provides a simplified surgical technique requiring less operation time and less exposure to anesthesia recovery period.
2. It appears to have no detrimental effect in the immediate post operative recovery period.
3. It decreases the number of suture material during operation

and also post operative analgesic requirement there by reduces the cost of surgery.

4. It does not affect the post operative morbidity.
5. It is associated with early return of bowl function.

A continuous effort must be made to research and evaluate the procedure in order to make it simpler, more efficient and to minimize short and long term complications. This study shows that high lights that non-peritonization technique is efficient, safe, simple, and less traumatic. It provides rapid recovery with early ambulation and resumption of oral feeding and return to home. Further clinical trials are needed to investigate the long term effects or benefit of non-closure of the peritoneum at vaginal hysterectomy.

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Original article

Lipid profile in non-diabetic chronic kidney disease

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Abstract

Objective : The objective of the study was to evaluate the lipid profile in non-diabetic patients with chronic kidney disease because dyslipidaemia is one of the cardiovascular risk factors responsible for cardiovascular disease and rapid progression of chronic kidney disease (CKD) to end stage renal disease.

Methods : This cross-sectional descriptive study was carried out in the department of Biochemistry, Chittagong Medical College and the samples were collected from the department of Nephrology, Chittagong Medical College Hospital during the period of July 2013 to June 2014. We enrolled 50 patients of both sexes suffering from chronic kidney disease without any cardiovascular instability and renal replacement therapy. For diagnosis of CKD, history and clinical features with supportive biochemical and radiological evidence were taken as criteria. Patients with already known diabetes mellitus were excluded.

Results : This study shows mean age was 60.12 (SEM±1.75) years. Among the 50 participants 58% were male and 42% were female. It was observed that the prevalence of dyslipidemia in CKD was found to be about 65.%. And the prevalence was increasing with the increase in severity of the disease. This abnormality was followed by a fall in HDL cholesterol and rise in the total Serum cholesterol in patients suffering from CKD.

Conclusions : The high prevalence of lipid abnormalities in CKD may accelerate the progression of CVD and increase the mortality of patients. Hence it is worthwhile to test and detect patients at high risk early on and manage accordingly.

Key Words : Dyslipidaemia, Non- diabetic CKD, End stage renal disease.

Introduction

Chronic Kidney Disease (CKD) is a worldwide health problem. Prevalence of CKD in the United States is increasing and affects about 19 million Americans.1 The United States has seen a 30% increase in patients suffering from CKD in the last decade.2 Over the last decade, it was established that CKD is associated with a very high mortality rate and accelerated Cardio-Vascular disease(CVD)[3].

Recent studies suggest that the risk for death is increased in individuals with less severe impairment of kidney function that does not require dialysis when compared to those who have preserved kidney function.

In patients who finally advance to end stage disease (ESRD) and especially dialysis patients, the prevalence of clinical coronary heart disease is 40% and CVD mortality is 10 to 30 times higher than in the general population of the same gender, age and race[3,4].

Dyslipidemia may be worsened by dialysis, especially continuous ambulatory peritoneal dialysis (CAPD). Dyslipidemia among patients with heart disease (HD) negatively impacts cardiovascular profiles, which in turn influence the frequency and/or duration of hospitalizations.5 Patients on CAPD exhibit high levels of total cholesterol (TC) and low density lipoprotein (LDL).6 After CAPD treatment for more than 12 months, these patients may reveal higher serum triglyceride and total serum cholesterol levels compared to their values before commencing CAPD. This phenomenon is not observed in HD patients, and it should be considered when selecting a dialysis modality given the risk of (CVD) in the dialysis population.7 In addition, a cross-sectional study found that variable results of lipid levels are related to their duration on dialysis8. The present study is mainly aimed at knowing the overall prevalence of dyslipidemia in hospitalized CKD patients and asses the derangement in lipid profile based on the severity of CKD.

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Materials & method

This cross-sectional descriptive study was carried out in the department of Biochemistry, Chittagong Medical College during the period of July 2013 to June 2014. Fifty patients of both sexes suffering from chronic kidney disease without any cardiovascular instability and renal replacement therapy were enrolled. Blood samples were collected from the admitted patients of Nephrology department, Chittagong Medical College Hospital and biochemical tests were done in the department of Biochemistry, Chittagong Medical College. Data were analyzed the by computer based software SPSS for windows version 18. Data were expressed as mean ±SEM. Confidence level was fixed at 95% and P value of 0.05 or less was considered significant.

Results and observations

Table-1: Distribution of age among the study groups

Age in years	Frequency	Percentage	Mean±SEM
40-50	5	10.0	
51-60	23	46.0	60.12±1.75
>60	22	44.0	

Table-2 : Distribution of sex among the study groups

Sex	Frequency	Percentage
Male	29	58.0
Female	21	42.0
Total	50	100.0

Table–3 : Distribution of serum creatinine and uric acid level (mg/dl) among the study groups (n=50)

(mg/dl)	N	Mean	± SEM
Serum creatinine	50	2.7	2.96
Serum Uric Acid	50	7.59	1.60

Table - 4 : Distribution of CKD stages among the study groups (n=50)

	Frequency	Percentage
CKD Stage 3	9	18
CKD Stage 4	14	28
CKD Stage 5	27	54

Table- 5 : Prevalence of dyslipidemia among the study groups

Dyslipidemia	Frequency	Percentage
Yes	32	64
No	18	36

Table-6 : Mean distribution of lipid profile among the study groups

Lipid profile	Mean	± SEM
Serum Total Cholesterol (mg/dl)	154.74	73.05
Serum LDL Cholesterol (mg/dl)	98.36	27.63
Serum HDL Cholesterol (mg/dl)	39.96	5.34
Serum TG (mg/dl)	162.16	51.88

Discussion

Chronic kidney disease (CKD) is one of the common health problems in the world and more common in developing countries like Bangladesh. The study consisted of 50 patients of which after evaluation represented the study population adequately in terms of age and sex. The mean age of the population of the study was 60.12±1.75 years.

It has been observed that the representation of either sex is adequate in the study group with a total of 29 (58%) patients being male and 21 (42%) patients being female.

The prevalence of dyslipidemia in non-diabetic CKD as calculated in this study is found to be 64% in patients with CKD without any prior history of diabetes. A study among Nepalese population with CKD recorded a higher prevalence of dyslipidemia among CKD patients when compared to the non-CKD control group, and the difference was statistically significant[9].

In the general study population there is marked elevation of triglycerides in 24 (48%) patients. A study by Saroj K et al reported a prevalence of 36.6% and a study in Khatmandu, Nepal also showed a prevalence of 35.58% of hypertriglyceridemia in CKD[9,10].

The cause for hyper triglyceridemia in chronic kidney disease patients has not been delineated. Available data derived from kinetic studies with intralipid administration have demonstrated that in the reduced catabolism of triglycerides, the predominant defect may be due to deficiency of lipoprotein lipase or hepatic triglyceride lipase or both.

Hypercholesteremia was found in 12 (24%) patients and decrease in HDL cholesterol was found in 16 (32%). Saroj K et al found about 34.4% of the CKD study patients to have hypercholesteremia and 34.1% had low levels of HDL cholesterol.10 The reports conducted in Khatmandu, Nepal by Poudel B et al showed a prevalence of 33.75% of hypercholesteremia[9]. Anderson et al found hypercholesteremia in 20% of the patients in there study[11].

Hypercholesteremia is a significant risk factor for CAD. But, Gerald Appel found low values of cholesterol in CKD patients[12]. Goldberg et al found decrease in HDL concentrations in CKD patients as compared to controls in contrast to Rapoport and Aviram study showed no decrease in HDL concentrations in CKD patients[13,14].

The LDL cholesterol is abnormal is only observed in 11 (22%) of the study population whereas Saroj K et al reported a larger figure of 35% of the study population to have undesirable LDL levels and Poudel et al reported an even higher prevalence of 38.03%. But abnormality in uremia is mainly qualitative[9,10].

In the present study 9 patients (18%) were in stage 3, 14 (28%) patients belonged to stage 4 and 27 (54%) patients were categorized as stage 5 or end stage renal disease. The prevalence of dyslipidemia increases as the chronic kidney disease progresses. According to Vaziri and Moradi CKD causes profound dysregulation of lipoprotein metabolism, resulting in lipoprotein abnormalities. Dyslipidemias develop during early stages of CKD, but progress rapidly with progression of CKD[15].

There is also increased incidence of dyslipidemia in stage 5 CKD as most of the patients undergo regular haemodialysis. And this increased incidence of dyslipidemia in stage 5 CKD may also be due to the long duration of illness. This has to be confirmed by further studies. No cases have been excluded from the study after enrolling due to complications or death during the study.

Conclusion

The study concludes that, the prevalence of dyslipidemia in non-diabetic CKD is high enough to create a health problem in the society and this problem of dyslipidemia increases with the severity of CKD. A high degree of abnormality is found in triglycerides in the form of hypertriglyceridemia in non-diabetic CKD patients.

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Original article

Correlation between health status of mother and birth weight of baby at term

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Abstract

Objective : Nutrition plays a major role in maternal and child health. Poor maternal health status has been related to adverse birth outcome is complex and is influenced by many biologic, socio-economic and demographic factors. This study was done to evaluate the maternal nutritional status and growth status of a baby, which further related to mortality, morbidity, and disability in neonates, infancy and childhood and has long term impact in health outcome in adult.

Methods : This observational cross sectional study was conducted in the Department of Obstetrics and Gynecology of Shaheed Suhrawardy Medical College and Hospital from July, 2012 to December, 2012. A total 168 patients of pregnant women admitted in hospital for delivery at term were enrolled in this study according to case definition. After enrolment, the patients were thoroughly assessed with particular emphasis on the anthropometric measurements. Weight, Height, BMI and Hb% of mother and birth weight of baby at term were measured and recorded in a pretested semi structured questionnaire. Results were compared between maternal health status and birth weight and For analytical test the level of significance is 0.05 & p-value <0.05 will be considered significant.

Results : Half of the LBW neonates were born to the mothers whose BMI was <18.5. On the other hand 17% LBW neonates were born to the mothers whose BMI was >18.5. That is the lower the maternal BMI; the greater is the risk of producing LBW babies. Over 41% LBW neonates were born to the mothers whose HB% was <10 gm./dl. On the other hand 9.8% LBW neonates were born to the mothers whose HB% was >10 gm./dl. It shows that anemic mothers have greater risk of producing LBW babies.

Conclusion : The study concluded that maternal health status influence neonatal outcome.

Key words : nutritional status, LBW.

Introduction

Human reproduction is a complex social, biochemical & physical process that is not as successful as once through.There are several factors in mother influencing fetus or neonate. The risk factors related to neonatal nutritional status should be assessed in mother to reduce potential neonatal risks. The factors vary from once region to another & from one country to another, depending on the socio-economic condition & environment[1]. Bangladesh is one of the least developed countries where especially low-birth weight babies & youngsters are the ignorance & malnutrition are wide spread problem, main victims of malnutrition. Birth weight is an indicator of the health status of the country. It is the most inter-determinants of the chances of newborn to survive & continue healthy neonates & overall future development. LBW is a general indication of the health status of a population.

It is universally acknowledged medical truth that adequate nutrition before & during pregnancy has greater potential for a long term health of both mother & the child & it is important during the course of pregnancy. A woman who has been well-nourished before conception begins her pregnancy with reserves of several nutrients, so that the recurrent needs of growing fetus can be met without adversely affecting her health. Infant who have been well nourished in the womb, have an enhanced chance of entering life in very good health. Mother's diet should provide adequate nutrients, so that maternal stores do not get depleted.

The crucial recommendation to such pregnant women in India is to consume a balanced diet as described by the

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Indian council4 of medical research which includes extra-nutrients for pregnancy, lactation & childhood. Poor fetal growth has been distributed to wide-spread maternal under-nutrition. Maternal nutrition is an important factor responsible not only for health of baby, but also for the baby's long term growth. Therefore understanding maternal nutrition & fetal growth relationship is critical.

Maternal health status is defined on the basis of weight for height, skin fold thickness of the arm, mid-upper arm circumference and the hemoglobin level in the blood Anthropometry provides a simple, reliable and low cost method of assessing maternal health status, which can be universally applied at the primary care level by low skilled workers in the community.

LBW is defined in the 29th World Health Assembly (WHA)6 in 1976 as a birth weight less than 2500gm.There are in fact only two ways in which birth weight can be influenced. One is the length of the time the fetus remains in utero & the other is the fetal growth rate.

It has been estimated by WHO that at least 57.9/1000 live birth. This rate is higher in Black is about 116/1000 live birth in relation to White is about 45.7/1000 live birth6. Rates of LBW, MLBW, and VLBW are lowest for mothers 25–29 years of age and increase with increasing and decreasing" age most of them developing countries[6]. A Common theme **well nourished in the womb, have an enhanced chance of entering life in very good health. Mother's diet should provide adequate nutrients, so that maternal stores do not get depleted**.

throughout the study is the substantial and persistent difference between black and white babies in the risk of low birth weight. In 1975, black babies were 2, 1 times as likely as white babies to have a birth weight of less than 2,500 grams. Low birth weight declined more for white than for black births in the 1975–85 period, increasing the racial deferential to 2.2: 'It remained at this level .in 1986 and 1987[6].

There is lack of adequate information regarding the risk factors of LBW in Bangladesh. In many developing countries like Pakistan, India, Malaysia & Thailand maternal nutrition, lack of education, ignorance, physical labor during late pregnancy & poor economic status have been identified as the determinants of LBW. As Bangladesh has similar socio-economic condition, culture & environment it could be assumed that the same risk factors could have an impact on birth weight. Therefore it is an urgent need to explore the risk factors for LBW to reduce perinatal mortality & morbidity. Considering these the present study has been designed to assess maternal health factors influencing neonatal outcome. Although this hospital based study will not be able to provide the situation of LBW of the nation at large. However the results can be utilized.

Materials and Methods

Study design, place and period : This observational cross sectional study was carried in Shaheed Suhrawardy Medical College and Hospital during July 2012 to December,2012.

Study Population : The study was carried out among the pregnant women admitted in the in-patient Department of Obstetrics and Gynecology in selected hospital at term.

Case Definitions

(A) BMI:BMI[3] is calculated by W/m^2, here W= weight in kg and m= height in meter.
Cut off point for pregnancy:
Normal:19.8 to 26 kg/m2 Low:<19.8 kg/m2
High:26.1 to 29 kg/m2 Very High: >29 kg/m2

(B) LBW : Less than 2500gm3
(C) Anaemia : Hb level at or below 9 gm./dl at any time during pregnancy3

Selection of cases

Inclusion criteria: All the pregnant women (except those who had the following exclusion criteria) admitted delivery at term.

Exclusion criteria : (a) The pregnant women suffering from hypertension, pre-eclampsia, diabetes, Thyroid dysfunction, & nephritis. (b) Major congenital anomaly of the fetus. (c) Multiple pregnancies.

Sample size and sampling : The samples are selected purposively based on the inclusion exclusion criteria from Shaheed Suhrawardy Medical College and Hospital during July2012 to December 2012. A total 168 cases were selected.

Data Collection : Data was collected by face-to-face interview using a semi-structured questionnaire. Data

along with maternal and newborn anthropometry was collected from the respondents directly. A valid & reliable neonatal weighing machine was used for measuring neonatal birth weight. Maternal BMI was calculated by using the following formula: BMI = W/m2 Here, W = weight in kg, m = height in meter.Maternal blood sample was collected for assessing hemoglobin estimation in gm./dl.

Statistical analysis : was performed using SPSS version 11.01. For analytical test the level of significance is 0.05 & p-value <0.05 will be considered significant.

Statistical analysis : was performed using SPSS version 11.01. For analytical test the level of significance is 0.05 & p-value <0.05 will be considered significant.

Results

In this study analysis of several factors influencing neonatal outcome was done. It showed that maternal Weight, Height, BMI &Hb% had an influence on neonatal outcome. Among 165 women majority of women were ≥ 150cm in height. Almost 31.42% LBW neonates were born to mothers height <150cm, average birth weight 2.5±0.7(mean±SD) and where as 15.78% neonates were born to mothers height ≥150cm, average birth weight was 3.2±.9(mean±SD).this shows that the lower the maternal height, greater is the incidence of LBW. This findings is strongly significant (p<0.0005).

Majority (36%) of women were between 50-55 kg in weight.34.88% LBW were born to mothers whose weight was <50kg and average birth weight was 2.1±.5 (mean±SD).On the other hand 18.03% LBW neonates were born to mother of average weight i.e. 50-55 kg and average birth weight was 2.8±.4.So lower the maternal weight, greater is the incidence of LBW.

Table-I

Correlation between mater nal height & birth weight of neonates

Maternal Height (cm)	Birth Weight (kg) <2.5 n(%)	2.5-3.9 n(%)	≥ 4 n(%)	Mean weight (kg) ± SD
<150	11(31.42%)	22(62.85%)	2(5.71%)	2.5 ±0.7
≥150	21(15.78%)	107(80.45%)	5(3.75%)	3.2 ± 0.9

Table -II

Correlation between maternal weight & birth weight of neonates

Maternal Weight (kg)	Birth Weight (kg) <2.5 n(%)	2.5-3.9 n(%)	≥ 4 n(%)	Mean weight (kg) ± SD
<50	15(34.88%)	28(65.11%)	0(0%)	2.1 ± 0.5
50-55	11(18.03%)	48(78.68%)	2(3.27%)	2.8 ± 0.4
56-60	4(7.69%)	45(86.53%)	3(5.76%)	3.1 ± 0.6
>60	2(16.66%)	8(66.66%)	2(16.66%)	3.2 ± 0.4

Table –III

Correlation between maternal BMI & birth weight of neonates

Maternal BMI (kg/m2)	Birth Weight (kg) <2.5 n(%)	2.5-3.9 n(%)	≥ 4 n(%)	Mean weight (kg) ± SD
Low	11(64.70%)	6(35.29%)	0(0%)	2 ± 0.3
Normal	17(13.82%)	104(84.55%)	2(1.62%)	2.9 ±0.6
High	3(13.63%)	17(77.27%)	2(9.09%)	3.3 ±0.5
Very high	1(16.66%)	2(33.33%)	3(50%)	3.4 ± 0.4

Table-IV

Distribution of neonates by birth weight and maternal hemoglobin

Maternal Hb (g/dl)	Birth Weight (kg) <2.5 n(%)	2.5-3.9 n(%)	≥ 4 n(%)	Mean weight (kg) ± SD
<7	1(100%)	0(0%)	0(0%)	2.1 ±0.4
7-7.9	2(50%)	2(50%)	0(0%)	2.5 ±0.5
8-8.9	9(19.56%)	34(73.91%)	(6.52%)	2.9 ±0.3

This findings is statistically significant (p<0.003).

The lowest maternal BMI was 16 and maximum was 53. Majority of the mothers were of average BMI 64.70%. LBW neonates were born to mothers whose BMI was low. On the other hand 13.82% LBW neonates were born to the mothers whose BMI was normal. That is the lower the maternal BMI; the greater is the risk of producing LBW babies. The finding is statistically strongly significant (p<0.01).

100% LBW neonates were born to the mothers whose Hb% was <7gm/dl. On the other 17.09% LBW neonates were born to mothers whose Hb% was ≥10 g/dl. It shows that anaemic mothers have greater risk of producing LBW babies. The finding is statistically strongly significant. (p< 0.05).

Discussion

This hospital-based study was carried out to assess the nutritional status of pregnant women by measuring weight, height, BMI and Hb% and to assess the pregnancy outcome by measuring birth weight of newborn. To get accurate information about the factors influencing neonatal outcome a community-based study was needed which could reveal a real picture. However this study provided information of a hospital setting. BMI is usually used as a parameter for non pregnant women. Here we received the mothers in pregnant state; so to minimize the inaccuracy anthropometric measurements were done on the day after delivery. Neonatal well being largely depends on its birth weight and other anthropometric measurements. Therefore it is suggested that to assess the neonatal outcome of a term baby birth weight should be considered. In this study an analysis of several factors influencing neonatal outcome was done. It showed that maternal Weight, Height, BMI and Hb% had an influence on **neonatal outcome. Various studies** were conducted in **many countries** about the incidence and factors related with low birth weight. The major and lowest birth weights were reported for Asia5.According to the demographic and health survey, UNICEF (1998-2002), 30% low birth weight babies are born in Bangladesh, 21% in Nepal and 22% in Srilanka[5]. This indicates the poorest condition of birth weight in Bangladesh among these countries. In the present study, LBW was found 19.5%, which is similar to the finding of Karim E.(1996)[2]. He found LBW 20.6% in a longitudinal anthropo metr ic study of mother-infant pair from Dhaka. The percentage of LBW in the present study is not consistent with that of UNICEF (1998-2002) as because the study is hospital based and the study population who sought medical care was restricted within the middle class and affluent society.Although, in this study the birth weight were differed, because maternal nutritional status influence more on birth weight than other anthropometric measurements of the infant. In this study highest percentage of LBW babies were found among the teen-aged mothers and with the increase of maternal age birth weight of their babies increased.

The study showed that proportion of LBW was observed among the mothers who have short stature, under-weight. This indicates poor health status of mothers significantly influence outcome of pregnancy.

Present study also showed that the lower the maternal BMI, the greater is the tendency of producing LBW babies. Karim3 study was consistent with this study; he found LBW of the neonates among the mothers of low BMI, which was also statistically significant.

In this study mean hemoglobin percentage of mothers was found 10.4 gm./dl sd±1.1. Majority of LBW neonates were born to the mothers whose Hb% was <10 gm./dl. On the other hand neonates of average andlarge for gestational babies were born to the mothers whose Hb% ≥10 gm./dl.

Limitation of the study

ShSMCH is one of the biggest referral hospitals in the country in respect of obstetrics. The majority of the patients admitted here are from the surrounding areas; rests are from nearby Dhaka city. The limitation of this study was that the sample size was small and it was done only at ShSMCH, so the results should not represent the real situation of Bangladesh. However most of the results are quite similar with that of other studies conducted in Bangladesh or similar socio-economic countries.

Conclusion

It was noticed that mothers with under weight had higher proportion of LBW babies. Maternal BMI was found to affect the growth of neonate. Influences of maternal age, parity gestational age were also seen on the birth weight.

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Original article

Laparoscopic Ventral Mesh Rectopexy (LVMR) - an early experience in BIRDEM Hospital

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Abstract

Objective : Full thickness rectal prolapse are treated by multiple procedures through perineal and abdominal approach. Consensus is lacking as to the best option. Each procedure is associated with significant recurrence rate.
The aim of this study is to report the effectiveness, complications following laparoscopic ventral mesh rectopexy in patients with full thickness rectal prolapse.

Methods : The study is a retrospective evaluation of 6 consecutive patients by a single attending surgeon in a general and laparoscopic surgery unit, between July 2014 to June 2016. Peritoneum was incised at the pouch of Douglas or rectovesical pouch, space created between the rectum and the vagina or urinary bladder, polypropylene mesh was fixed to the rectum and posterior fornix of the vagina with non-absorbable suture and to the promontory of the sacrum with same suture instead of staples. The peritoneum was suture closed over the mesh. Patients were reviewed at 1 and 6 months, then annually to assess recurrence, morbidity and mortality.

Result : There was no recurrence or mortality among four female and two male patients. Morbidity consisted of chronic deep perineal pain in one young male patient who was treated conservatively with oral analgesic.

Conclusion : LVMR seems to emerge as a safe and effective procedure to treat full thickness rectal prolapse, but large series and long term results are needed and we are continuing the study for the same.

Key words : Rectal prolapse, intraperitoneal ventral mesh rectopexy (IVMR), polypropylene mesh, pouch of Douglas.

Introduction

Full thickness rectal prolapse (FTRP) is an extrusion of full thickness of the wall of rectum beyond the anal verge1. Full thickness rectal prolapse are treated traditionally by procedures through perineal or abdominal approach. The perineal approach (Delorme and Altemeier Procedures) are becoming less favourite due to high recurrence rates. It is nowadays generally accepted that the abdominal procedures including the rectopexy to the promontory has a lower recurrence rate and improved functional outcome and are therefore preferred over the perineal operations2. Since 1995, the laparoscopic abdominal approach is practiced 3,4. Laparoscopic rectopexy has less abdominal discomfort, faster recovery, shorter hospital stay, and absence of scar5,6. However, consensus is lacking as to the best option. Each procedure is associated with significant recurrence rate. The aim of this study is to report the effectiveness, procedural minutes and complications following laparoscopic ventral rectopexy (LVR) in patients with full thickness rectal prolapse.

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Materials and methods

The study is a retrospective evaluation of 6 consecutive patients by a single attending surgeon in a general and laparoscopic surgery unitof BIRDEM general hospital, between July 2014 to June 2016. Four patients (67%) were female and two patients (33%) weremale. Mean age was 53.5yrs (18-80yrs). All patients complained of something coming out of anus on straining, for several years (6yrs to 17yrs). All patients were able to reposition the prolapsed rectum manually. They also complained of mucus discharge and occasional pain. FTRP was diagnosed clinically in prone and squatting posture. Pre-operative workup included routine investigations for general anesthesia fitness. All patients were kept on low residual diet for 3 days pre-operatively and a laxative given day before surgery. A per-urethral Foley's catheter was placed in-situ just before surgery and removed at the end of procedure.Surgery was performed under general anesthesia. Laparoscopy was performed through 3 / 4 trocars, one 10mm trocar in umbilicus, two 5mm trocars in right and left iliac fossa. A fourth 5mm trocar was inserted in suprapubic area where needed. Patient was in Trendelenburg position. Peritoneum was incised at the pouch of Douglas or rectovesical pouch, space created

between the rectum and the vagina or urinary bladder, polypropylene mesh was fixed to the rectum and posterior fornix of the vagina with non-absorbable suture and to the promontory of the sacrum with same suture instead of staples. The peritoneum was suture closed over the mesh. Rest of the surgery was completed in usual manner of laparoscopic cholecystectomy. Oral diet was resumed 24 hours after surgery. Data were collected on patients age, sex, preoperative diagnosis, operative methods and length of stay in hospital. Patients were reviewed at 1 and 6 months, then annually to assess recurrence, morbidity and mortality.

Results

Six consecutive patients of FTRP underwent LVMR, in BIRDEM general hospital,from July 2014 to June 2016. Four patients (67%) were female and two patients (33%) were male. Mean age was 53.5yrs (18-80) years. All patients were diagnosed as FTRP clinically. Pre-operative workup included routine investigations. All patients underwent LVMR with polypropylene mesh.There were no intraoperative complications in any of the patients. All six patients had uneventful post-operative course.Oral diet was resumed 24 hours after surgery. The hospital stay of the patients ranged from 48hours to5 days (mean 3 days). Patients were reviewed at 1 and 6 months, then annually to assess recurrence, morbidity and mortality.There was no recurrence or mortality among the patients. Morbidity consisted of chronic deep perineal pain in one young male patient who was treated conservatively with oral analgesic.

Table 1 : Distribution of patients by study variables

Variables	Data
Total number of patients	6
Age in years(Mean)	53.5 years (18-80 years)
Sex Distribution	
Male	2(33%)
Female	4(67%)
Duration of Hospital stay	48 hours - 5days (3days)
Duration of Follow-up	1 month, 6 months, yearly

Table 2 : Distribution of patients by complications Complications

Variables	Data
Mortality	0(0%)
Intraoperative Complication	0(0%)
Postoperative Complication	
Deep Perianal Pain	1(17%)
Recurrence	0(0%)

Discussion

LVMR is the ideal treatment for internal and external rectal prolapse7,8 with minimum complications and recurrences in comparison to open abdominal posterior rectopexy9. Our series consists of six patients which is very small in number compared to other studies 4,5,7. However, similar to other studies, low complication and no recurrence was found. Improved results are possibly due to limited anterior rectal mobilization and no lateral mobilization. Thus preventing rectal denervation and post-operative constipation10. Proximal mesh fixation to sacral promontory prevents the rectal intussusception. In our series, majority were female (67%), which resembles other series (11). In fact, a low anterior dissection to levator ani corrects rectocele. This procedure allows correction of the median compartment with vaginal vault fixation to the mesh and is therefore the first choice of surgical treatment in females 10. Low fixation of mesh to ventral rectal wall also minimize recurrence rates and allow repair of large rectoceles8. The creation of a shallow, elevated pouch of Douglas at the end of operation by suturing the peritoneal incisions over the mesh corrects a concomitant enterocele and sigmoidocele12,13. Age range in this series is 18-80 years which corresponds to other data in different series (11). In our series, we have used synthetic mesh in all cases because it is less expensive and more readily available in our centre. However, different publications show similar rates of mesh complications and failure for biologic and synthetic meshs14. The hospital stay of the patients ranged from 48hours to 5 days (mean 3 days) as in different studies12. Patients were reviewed at 1 and 6 months, then annually to assess recurrence, morbidity and mortality. This follow-up period is quiet inadequate for such procedure. However, there was no recurrence or mortality among the patients. Morbidity consisted of chronic deep perineal pain in one young male patient who was treated conservatively with oral analgesic. More results will show in subsequent

follow-up years. All large series5,7,11,12 have a minimum of 5 years of follow-up, which show that complications arise usually after 3 years.

The strength of the study is inclusion of all uncomplicated cases who were willing to undergo LVMR. Limitation of the study is, it is a retrospective study, number of cases is small and follow-up period is short.

Conclusion

LVMR seems to emerge as a safe and effective procedure to treat full thickness rectal prolapse, but large series and long term results are needed and we are continuing the study for the same.

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Review article

Problems, prospect and future of antibiotic resistance

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Abstract

About 90% of deaths due to infection worldwide are caused by antibiotic-resistant microorganisms. Antimicrobial resistance (AMR) is one of the greatest global health threats of the modern age.1,2. .Multidrug-resistant bacteria have become a major health concern. With new generations of virulence and resistant bacteria, we need to improve our understanding and produce novel techniques to control these pathogenic bacteria. Multidrug resistance is amongst the top three threats to global public health and is usually caused by excessive drug usage or prescription, inappropriate use of antimicrobials, and substandard pharmaceuticals. Understanding the resistance mechanisms of these bacteria is crucial for the development of novel antimicrobial agents or other alternative tools to combat these public health challenge. This article reviews the current situation and examines future strategies to tackle the continued threat of bacterial resistance.

Introduction

Antimicrobial resistance is one of the biggest man-made public health threats of modern times. Since the pioneering work of Alexander Fleming, Paul Ehrlich, Gerhard Domagk, and others on antibiotics about 100 years ago, the benefits of these "miracle drugs" for the treatment of infectious diseases have been taken for granted in public health. Unfortunately, a dramatic change has taken place in recent years in terms of efficacy of administered antibiotics. More and more bacteria have developed resistance against antibiotics, and these resistant microorganisms can withstand attack by antimicrobial drugs so that standard treatments become ineffective and infections persist, thereby increasing the risk of spreading to others[3]. Several decades of antibiotic abuse in humans, animals, and agricultural practices have created health emergency situations and huge socio economic impact. Antimicrobial resistance is an important issue when treating patients with various bacterial, fungal, protozoal, and viral infections. However, organisms causing common community-acquired infections have now developed antimicrobial resistance.

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Rationale of the review

As the prevalence of antimicrobial resistance rises, treatment of common infectious diseases, such as respiratory infections and urinary tract infections, becomes increasing 'challenging, and advances made in complex medical therapy, such as organ transplantation, neonatology and intensive care, are also threatened. Compounding this threat is the scarcity of new antimicrobial compounds in the research and development pipeline[4]. Moreover, the treatment of infections due to antimicrobial–resistant organisms places a substantial burden on healthcare systems, and has a major societal and economic impact[1,5]. Finding strategies against the development of antibiotic resistance is a major global challenge for the life sciences community and for public health. Antibiotic-resistant bacteria lose acquired resistant genes more slowly than they were acquired when conditions favorable to antibiotic resistance are removed. If these resistant genes are lost, new generations of the bacteria will respond to antibiotics[6,7].

In this review, we focus on antibiotic-resistant bacteria in developing countries, genes that have mutated in several of the most important antibiotic-resistant bacteria, and ways to prevent infection with these resistant bacteria. This article reviews the current situation and examines future strategies to tackle the continued threat of bacterial resistance.

Methods

A systematic literature search of published articles on antibiotic resistance was conducted. Abstract, full text, experimental studies and review articles that discussed with antibiotic resistance were included.

Discussion

Antibiotic-resistant bacteria cause both community and healthcare associated infections, presenting challenges in treatment and management. The development of new and novel antibiotics, particularly for Gram negative bacteria, is worryingly lacking.

The past decades have seen a dramatic worldwide increase in human-pathogenic bacteria that are resistant to one or multiple antibiotics. More and more infections caused by resistant microorganisms fail to respond to conventional treatment, and in some cases, even last-resort antibiotics have lost their power. In addition, industry pipelines for the development of novel antibiotics have run dry over the past decades.

What is antibiotic resistance?

Antibiotics are often used to treat bacterial infections and are a cornerstone of infectious disease care. However, bacteria evolve in response to their environment. Over time, they can develop mechanisms to survive a course of antibiotic treatment. This "resistance" to treatment starts as a random mutation in the bacteria's genetic code, or the transfer of small pieces of DNA between bacteria. If the mutations are favourable to them, they are more likely to survive treatment and be able to replicate, and are therefore more likely to pass on their resistant nature to future generations of bacteria. When taken correctly, antibiotics will kill most non-resistant bacteria, so these resistant strains can become the dominant strain of a bacterium. This means that when people become infected, existing treatments may be unable to stop the infections.

Antimicrobial Resistance Mechanisms

Antimicrobial resistance can occur via several mechanisms, including: prevention of the ingress of the antibiotic into the target organism's cytoplasm, alteration of or compensatory over-elaboration of the antibiotic target, destruction of the antibiotic, or enhanced function of microbial efflux pumps (wherein the organism pushes the antibiotic out of the cell)[8]. Normally susceptible groups of bacteria may become resistant to antimicrobial agents via random mutation or by acquisition of genetic information that encodes resistance from other, unrelated bacteria. Many bacteria have become resistant to multiple classes of antibiotics via genetic exchange mechanisms8. Antimicrobial resistance genes may be carried on the bacterial chromosome, plasmid, or transposons[9]. Mechanisms of drug resistance fall into several broad categories, including drug inactivation/alteration, modification of drug binding sites/targets, changes in cell permeability resulting in reduced intracellular drug accumulation, and biofilm formation[10-12]. Although resistance of bacteria to antibiotics can be natural, bacteria can also become resistant to an antibiotic through a genetic mutation or by acquiring resistance from another bacterium. One type of mutation, a spontaneous change in the bacteria's genetic material that provides a different type of resistance, is rare and only occurs with a ratio of about 1:106 to 1:107. Mutations can impact bacterial cells in different ways. Some mutatio ns enable bacteria to produce enzymes or other active chemical compounds that inactivate antibiotics, whereas others remove target cells that are attacked by antibiotics, close up entry ports that allow antibiotics inside cells, or produce pumping mechanisms that block antibiotics from reaching their target[13-19]

Framing the problem of antibiotic resistance

The introduction of antibiotics in the mid-20th century was arguably the single most important medical event in recent history with regard to reducing human morbidity and mortality. However, the subsequent and continuing intensive use of antibiotics, both in medicine and in agriculture, estimated to total several million tons worldwide since their introduction[20,21,22], has helped to select a huge increase in the frequency of resistance among human pathogens. High frequencies of resistance significantly reduce the possibility of effectively treating infections. This increases the risk of complications and fatal outcome[23,24], increases the economic burden on health care systems[25,26,27] and may ultimately threaten a postantibiotic era[28-31].

Today, there are about six different deadly bacteria that have strains resistant to all or virtually all antibiotics : Enterobacteriaceae (especially Escherichia coli, Salmonella spp., and Klebsiella pneumoniae), Acinetobacter spp., Pseudomonas aeruginosa, Enterococcus spp., Mycobacterium tuberculosis, and Neisseria gonorrhoeae[32-35] .Antibiotic resistance occurs when strains

of bacteria no longer respond to antimicrobials used to treat infections caused by those microbes. Although some species of bacteria are inherently resistant to one or more classes of antimicrobial drugs, cases of acquired resistance in populations of bacteria that were once susceptible are of greater concern Resistant organisms can also transfer genetic material to other species, which exacerbates the problem by leading to an increased number and variety of microbes demonstrating resistance[8] Populations of antibiotic-resistant bacteria can spread vertically by passing on resistant gene or genes to new generations, or horizontally by exchanging genetic material from one bacterium to another or between different bacterial species. Antibiotic-resistant bacteria lose acquired resistant genes more slowly than they were acquired when conditions favorable to antibiotic resistance are removed. If these resistant genes are lost, new generations of the bacteria will respond to antibiotics[6,7].

In this review, we focus on antibiotic-resistant bacteria in developing countries, genes that have mutated in several of the most important antibiotic-resistant bacteria, and ways to prevent infection with these resistant bacteria.
The future for antibiotics and antibiotic resistance

1. As new antibiotics are discovered and enter clinical use, it will be a matter of time before resistance to these drugs occurs due to the nature of evolution.
2. Strategies to ensure infections remain treatable in the future will need to include.
3. Infection prevention measures.
4. Strict control of antibiotic prescribing.
5. Development of new and different antibiotics.
6. Consideration of new technologies.
7. Developing new antibiotics will require public funding and greater involvement of non-profit making organizations (such as universities), with a focus on the Gram negative bacteria36 Collaborations between microbiologists and biochemists will be essential in supporting the discovery of new classes of antibiotics.
8. Increased infection prevention and control measures in healthcare settings will be necessary to reduce the spread of existing resistant bacteria, but also to reduce all HCAIs and, therefore, reduce antibiotic prescribing. Other preventative measures, such as vaccination, should also be pursued, taking the focus back from one of treatment to one of prevention.
9. Tighter control over antibiotic prescribing is also essential and this can be supported by developing rapid and sensitive diagnostic testing, enabling more timely identification of the bacteria causing infection. This also further supports the use of antibiotics with a small spectrum of activity. Surveillance systems will also be essential for tracking resistance patterns
10. and ensuring that antibiotic policies reflect local antibiotic resistance patterns.

Promising Future

Since the discovery of microbial pathogens, science is developing new antimicrobial agents, and with the new scientific revolution, several methods including molecular techniques have been developed. Identification of the bacteria genome structure provides an accurate understanding of the virulence of pathogenic bacteria and of the properties controlling the pathogens, thereby preventing infection. However, we still need to develop new promising medications including antibiotics and vaccines, and new methods for chemotherapy and organ transplants. With $30 million annual funding over five years[40]. Centers for Disease Control and Prevention Antibiotic Resistance Initiative has succeeded in reducing antibiotic resistance associated with: 50% of C. difficile, which saves 20,000 lives, prevents 150,000 hospitalizations, and reduces healthcare costs by more than $2 billion; 50% of carbapenem-resistant Enterobacteriaceae infections; 30% of multidrug-resistant Pseudomonas, a common cause of infections; 30% of invasive methicillin-resistant S. aureus; and 25% of multidrug-resistant Salmonella infections[37].

New developments

As new antibiotics are discovered and enter clinical use, it will be a matter of time before resistance to these drugs occurs due to the nature of evolution.
Strategies to ensure infections remain treatable in the future will need to include:

- Infection prevention measures.
- Strict control of antibiotic prescribing.
- Development of new and different antibiotics.
- Consideration of new technologies.

Developing new antibiotics will require public funding and greater involvement of non-profit making

organizations (such as universities), with a focus on the Gram negative bacteria[36]. Collaborations between microbiologists and biochemists will be essential in supporting the discovery of new classes of antibiotics.

Increased infection prevention and control measures in healthcare settings will be necessary to reduce the spread of existing resistant bacteria, but also to reduce all HCAIs and, therefore, reduce antibiotic prescribing. Other preventive measures, such as vaccination, should also be pursued, taking the focus back from one of treatment to one of prevention.

Tighter control over antibiotic prescribing is also essential and this can be supported by developing rapid and sensitive diagnostic testing, enabling more timely identification of the bacteria causing infection. This also further supports the use of antibiotics with a small spectrum of activity. Surveillance systems will also be essential for tracking resistance patterns and ensuring that antibiotic policies reflect local antibiotic resistance patterns.

While a number of antibiotics are in the latter stages of development for Gram positive infections, the only one imminently expected into worldwide use for Gram negative bacteria is faropenem, with development of an oral carbapenem in progress.

These products, together with the other recently launched antibiotics for Gram negative infections, are related to or derivatives of existing groups of antibiotics in which Gram negative bacterial resistance is also present.

The development of new antibiotics is costly and time consuming, giving limited financial return for the outlay associated with their development. In addition, prudent antibiotic prescribing to reduce risk of other infections (such as C. difficile) and the need for antibiotics with a narrow spectrum of activity means their development is not financially viable for the pharmaceutical industry38. This lack of development of antibiotics for Gram negative bacterial infections is a cause of major concern internationally[36].

Other novel technologies, aimed at preventing rather than curing infections, may be useful to reduce antibiotic use and delay the inevitable development of resistance. They have also been shown to have an impact outside of the age group being vaccinated. For example, the pneumococcal vaccine given to children also reduced infection rates in older age groups and an associated reduction in macrolide resistance was seen[39].

Clinical trials of vaccination against P. aeruginosa have taken place. Vaccines against other Gram positive and Gram negative bacteria are in the early stages of development[38].

Since many infections caused by Gram negative bacteria are opportunistic –affecting people with poor immunity due to underlying conditions – cases of Gram negative bacterial infection are likely to increase as advances in medical treatments lead to increased survival of patients with severe underlying disease. Combining this with increasing resistance to commonly used treatments, all available options to preserve the effectiveness of existing antibiotics need to be deployed.

What recommendations does the review make?

The review makes 10 recommendations, outlined below.

1. Launch a massive global public awareness campaign

The issue of antibiotic resistance is still not fully appreciated, especially in the developing world, where antibiotics are often sold without prescription.

2. Improve hygiene and prevent the spread of infection

Improving access to clean water and sanitation, promoting best practice in hospital infection control, and simply encouraging people to wash their hands will all help prevent infection.

3. Reduce unnecessary use of antibiotics in agriculture

The US Food and Drug Administration estimates 70% of medically useful antibiotics are actually sold for use in animals.

It argues that critically important antibiotics should be restricted from animal sales.

4. Improve global surveillance of drug consumption and resistance

Governments need to share data on antibiotic consumption and levels of resistance; Poorer countries should be given assistance in gathering data.

5. Promote new rapid diagnostic tests to

reduce unnecessary use of antibiotics

Many antibiotics are prescribed in cases when a bacterial infection hasn't been confirmed, as a precaution. New types of tests could help prevent this.

The review hopes that by 2020, in wealthy countries antibiotics would only be prescribed if a bacterial infection had been confirmed through testing.

6. Promote the development and use of vaccines and alternatives

Encouraging the take-up of existing vaccines, as well as providing incentives for the creation of new ones, should help reduce the demand for antibiotics.

There also may be alternative interventions that can help prevent infections occurring.

7. Improve the number, pay and recognition of people working in infectious diseases

Infectious disease health professionals tend to be paid less than their peers working in other fields.

A similar pattern can be seen in both private and public sector workers involved in infection research.

8. Establish a Global Innovation Fund for early-stage and non-commercial research

The review recommends that a Global Innovation Fund should be set up to fund "blue sky" research – research that may not have an immediate commercial application, but could lead to breakthroughs in the future.

9. Better incentives to promote investment for new drugs and improve existing ones

There is currently not a great deal of profit in antibiotic research, so pharmaceutical companies should be encouraged by meaningful incentives, such as a reward for bringing a new drug to market.

10. Build a global coalition for real action

Antibiotic resistance is a global problem, so it can only be tackled through global action.

Conclusions

Multidrug-resistant bacteria have become a major health issue. With new generations of virulence and resistant bacteria, we need to improve our understanding and produce novel techniques to control these pathogenic bacteria. In our review, we focused on five pathogenic bacteria with completed genome sequences, which provide a better target for a new generation of antibiotics.

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Case report

FIVE CASES OF SCAR ENDOMETRIOSIS Ad-din Medical College Hospital in 2009-2010

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Summary

Scar Endometriosis is not a common condition but due to increased incidence of caesarean section. It is not rare now. We report five cases where the women age between 22-35 years develop swelling with tenderness in the scar following 1 years to 5 years of caesarean section, compliant was more marked during menstruation and ultrasonography of swelling showed multilocutated cyst. Excision biopsy followed by histopathology confirmed the diagnosis of scar endometriosis and women got relief from there complain after excision. Cases were followed up clinically

Scar endometriosis : Defined as presence of functioning endometrium in scar tissues.

Introduction

Endrometriosis is a condition in which presence of ectopic functional endometrial tissue outside the uterine cavity. Endrometriosis was first described by rokitansky in 1860. It is most commonly found in pelvis involving ovaries, fallopiantubes, posterior cul-de-sac, uterine ligaments, rectovaginal septum and surrounding pelvic peritoneum. Endrometriosis has been described in almost every area of female body. The most common extra pelvic appearance of Endrometriosis occur in the scar following a variety of obstetrical and Gynaecological surgery[1,2]. Spontaneous endrometriosis[3] in abdominal wall can be occurred. Majority of scar endrometriosis occurred following caesarean section. Incidence: 0.3-1%. In about 25% with concomitant pelvic endrometriosis. Though most common site is caesarean scar but there are case report of endrometriosis involving the rectus abdomen's mussle in virgin abdomen.4 Location of endrometriosis close to surgical scar is rare and difficult to diagnosis. Clinically the condition may be confussed with foreign body granoloma, incisional hernia, lipoma, fibroma, Sarcoma and abscess. These patients sometime first consult the general surgeon. When ever the condition occurred, the ectopic endrometrium respond to cyclical changes from ovarian hormones although there is developmentally delay in comparison with normally sited endrometriosis.

Case-1

In April 2009, 24 years old lady para 1+0 was attended several times in Gynae out patients department for feeling of something in two ends of scar following caesarean section which occurred 11/2 years back. Latter on these swelling were associated with tenderness and increase in size specially during menstruation. Physical examination showed two tender fixed firm nodules at two ends of scar; USG revealed multiloculated cyst may be infected mass. After excision biopsy, histopathology showed endometrial tissue containing glands and stroma. After excision she was treated ē antibiotic or analgesic. After ½ m there was no complain of swelling.

Case-2

In August 2009, 35 years old lady having para 1+3 (Spontaneous abortion) delivered her 1st baby by caesarean section 5 years back. Latter on, she develop a swelling on the left end of the scar one year after her operation. She also noticed that the swelling became more painful during menstruation. On physical examination a firm non mobile mass of (2×2) cm was felt. Ultrasonography report showed a subcutaneous nodular mass. After excision, biopsy, histopathology report showed fibrocartilagenous tissue containing endometrial glands and stroma. After 1 ½ month she was free from symptom.

Cass-3

In April 2010, 30 years old lady with para 2 with history of previous two caesarean section complained of pain and swelling in the left side of the scar after 2 years of last caesarean operation which occurred 4 years back. The swelling became painful during menstruation. On examination, a tender nodule was found in the left corner of caesarean scar. Excision biopsy showed endometrial glands and stroma with surround fibrous tissue.

Cass-4

In August 2010, a 22 years old 2nd gravid women admitted

with term pregnancy with history of previous caesarean section 3 ½ years back. She developed pain in left side of scar with a swelling before conception of 2nd pregnancy which was marked during menstruation. She felt no pain in between menstruation and during pregnancy. During delivery of 2nd baby by caesarean section, the mass was excised and sent for histopathology which showed fibrofatty tissue embedded with many endometrial glands and stroma.

Cass-5

In December 2010, a 29 years lady with para 1+2 complained of pain the operation area during menstruation for last 6 months and her caesarean section was done 3 years back. On examination, a tender small mass near the middle of the scar was felt. Excision biopsy was done and histopathotlogy showed endometrial glands and stroma with fibrous tissue.

Pathophysiology : Scar endrometriosis are develop to be the result of direct inoculation of the abdominal fascia/subcutaneous tissue with endrometrial cells during surgery; then the endrometrial tissue are stimulated with oestorgen. This theory is convicingly demonstrated by experiments in which normal menstrual effluent transported to the abdominal wall resulted subcutaneous endrometriosis[5]. During each menstrual cycle, the endrometrial deposit proliferate and then breaks down and bleed causing a local inflamatory reaction which may be followed over prolonged period of time by fibrosis; eventually chronic repision of the process disrupt and distorts the affected tissue and typically dense scar tissue, adhesion or endrometrioma may form.

Though the risk of malignancy is rare, long standing recurrent scar endrometriosis could under go malignant change.6 So awared. Carcino-sarcoma arising from atypical endrometriosis in a c-section scar[7].

Follow up and prevention : Good technique and proper care during c-section preventing scar endrometriosis. It has been suggest that at the end of surgery specially on uterus and fallopian tubes- the abdominal wall wound should be cleaned thoroughly and irrigated vigorously with high jet solution before closure[8]. Abdominal wall endometriosis after c-section: a preventable complication.

Discussion

Scar endometriosis is rare but as the rate c-section is increasing and incidence of diagnosed case of endometriosis (for laparoscopy) is increasing- the differential diagnosis of scar endometriosis should be kept in mind when swelling in or near the scar was present which resembling surgical lesion like hernia, haematoma, granuloma, abscess or tumour. The lesion may misdiagnose with stitch granuloma. The interval between operation and presentation of scar endometrioma varies from three month to 10 years. This cases develop after 1years to 5 years of c-section. Symptoms are non specific and may accompany abdominal pain even resembling an acute abdomen at the time of menstruation. Sever pain can be caused by development of autonomic and sensory innervation of ectopic endometrial growth. Most of this cases presented with development of nodule in c-section scar which were increased in size with duration of time and pain was more during menstruation.

Endometriosis is a disease of theory, exact cause of development is still unclear, Sampson coined the disease in 1921. There are two main theories extent in the literature which attempt to explain the origin of scar endometriosis. The transport theory points retrograde regurgitation of endometrial cells through fallopian tubes, vascular or lymphatic spread or direct implantation in surgical scar. The metaplasia theory hold that cells which have retained multipotention are located in extrauterine sites; these cells can undergo metaplasia under the proper stimuli to produce endometriosis.

Scar endometriosis in these patients could have occurred by either method. Endometrial cells could have been transported to scar at the time of c-section which subsequently stimulated with ovarian hormones or suture materials may stimulated the growing cells (which heal the wound) as foreign body inflmatory reaction to undergo metaplasia to endometriotic cell. More over the genetic and immunological factors can influences the development of the disease. It has been suggested previous to develop endometriosis that chronic inflamation may stimulate the development of endometrial tissue in kidney through metaplasia of renal tissue. Inflamation and fibrosis are characteristically found in the histology of the vicinity of scar. Endometriosis and these histology features were also found in these cases.

Clinical diagnosis can be made by careful history taking and physical examination. If women of reproductive age has symptoms of increasing cyclical or noncyclical pain in the nodules of scar or increase the size of the scar tissue at the time of menstruation-scar endometriosis should be suspected. Diagnostic test eg. computed tomography, MRI, Ultasound and needle biopsy (FNAC) have been used with varying degree of success and accuracy to establish the diagnosis of scar endometriosis. In these cases ultrsound

helped for suspision.

Medical management of scar endometriosis has been reported, but recurrence on cessation of therapy is also inevitable. So, surgical resection is the treatment; excision of the mass should be complete with margins wide enough to prevent recurrence. New treatment modalities are aimed at reducing vascularisation of ectopic growth. In these cases wide resection was done.

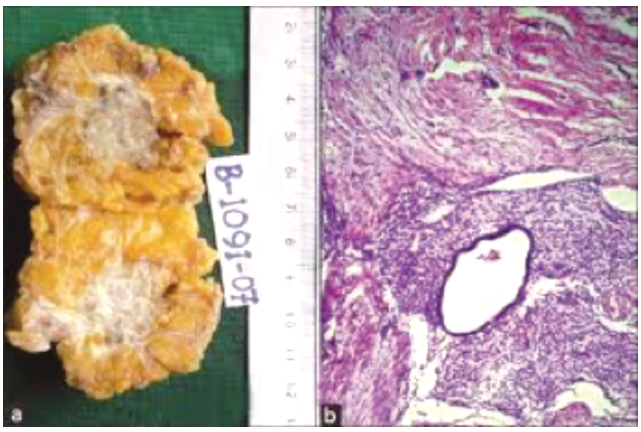

Fig: Macroscopic and Microscopic view of scar endometriosis

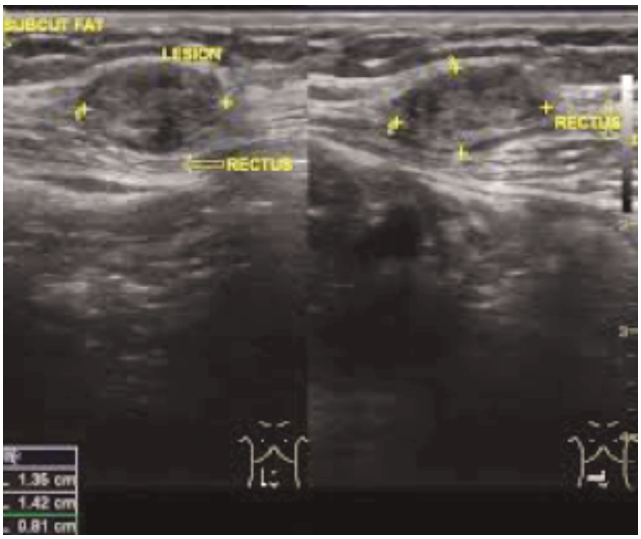

Fig: USG of scar endometriosis

Conclusion

Scar endometriosis is not common but one should have high index of suspicion when an women of reproductive age presented a painful swelling in the abdominal scar following obstetrical and gynaecological operation. It can be confused with varied surgical condition. Efforts should be made to make the proper diagnosis with the help of clinical history, examination and investigation like USG, MRI, FNAC. Medical treatment is not helpful, wide excision is the treatment of choice. Patients should be followed up for recurrence/Associated pelvic endometriosis should be explained.

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