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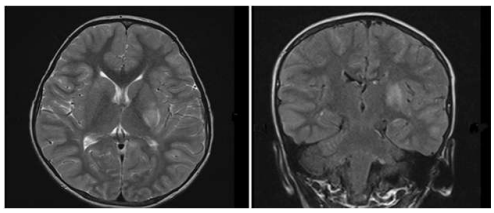

MRI with contrast showed abnormal T2 and FLAIR hyper intense signals in cortical gray matter.

Courtesy: Dr Ali Faisal Saleem, Aga Khan University, Karachi.

Updates on Pathogens of Childhood Diarrhea in Pakistan.

Diarrhea remains one of the major killers of children, about 600,000 children die due to diarrhea every year, equivalent to deaths due to neonatal sepsis.[1] *Rotavirus*, *Norovirus, adenovirus*, *cholera* and *Shigella* have been mentioned in text books as the top diarrheal pathogens for more than a decade. Little has been done to systematically investigate the changing epidemiology of diarrhea in developing countries. Knowledge of the causative pathogens can have an impact on management of kids with diarrhea and may help in reducing child mortality to achieve the millennium development goal (MDG 4).

A large multicenter study was conducted at seven sites in Asia and Africa to find out the etiological agents of childhood diarrhea. This large prospective, age-stratified, matched case-control study of moderate-to-severe diarrhea in children aged 0–59 months, collected clinical and epidemiological data, anthropometric measurements, and a stool sample to identify enteropathogens causing diarrhea.[2] Along with culture of stool specimens, sophisticated diagnostic tests like multiplex PCR and immunoassays were used to ensure the identification of pathogens from stool. In Pakistan, *Rotavirus*, *Aeromonas* and *Shigella* were identified as the top three pathogens of diarrhea. The other pathogens were *Cryptosporidium*, *ST-ETEC*, *Campylobacter jejuni* and *Vibrio cholerae* 01. The other viral pathogens of diarrhea like *Norovirus*, *Adenovirus* and *Sapovirus* were not significantly associated with diarrhea in children in Pakistan. It was interesting to note that Giardia was also not a significant cause of moderate -to- severe diarrhea in children less than 5 years and for the first time, *Aeromonas* has been documented to be as a significant etiological agent of childhood diarrhea in Pakistan.

What are the implications of these findings? WHO currently recommends only zinc and ORS for the management of pediatric acute watery diarrhea. Antibiotics are only recommended for cholera and dysentery. Despite these recommendations, a large number of children are still dying from diarrhea. Probably, these deaths may not be amenable only to the current standard of care of therapy (ORS, Zinc and feeding advice). Based on the identification of the etiological agents of diarrhea in the above study, we realize that most cases of moderate to severe diarrhea in children less than 5 years of age have an underlying bacterial etiology. This calls for antibiotic trials and subsequent policy change for antibiotic recommendations for diarrhea. Furthermore, most prescriptions for treatment of diarrhea in communities in Pakistan include “metronidazole”, and we see that parasites including giardia are an extremely rare cause of moderate to severe diarrhea in this age group.

Worldwide in 2008, diarrhea attributable to rotavirus infection resulted in 453,000 deaths in children younger than 5 years.[3] The vaccine for *rotavirus* is commercially available and has been included in the immunization programme of many countries, but the decision is yet to be implemented in Pakistan. A significant reduction in morbidity and mortality attributable to rotavirus and all-cause diarrhea has been reported in high-income and middle-income countries where rotavirus vaccine has been introduced.[4, 5] The introduction of this vaccine alone within the vaccination schedule can prevent a significant proportion of diarrhea in children. In short a lot is yet to be achieved for reducing morbidity and mortality due to this common childhood illness.

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Atypical Presentations of Hepatitis A in Children Presenting to The Children Hospital Lahore, Pakistan.

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Abstract

Background
To describe the atypical manifestations (extrahepatic and hepatic) in children 1 to 15 years with Acute Viral Hepatitis A infection, admitted at The Children Hospital, Lahore.

Methods
We conducted this descriptive cross sectional study to analyze the atypical profile of hepatitis A virus (HAV) infection at our tertiary care centre, The Children's Hospital and The Institute of Child Health, Lahore, during December 2011 to December 2013. All children aged between 1year to 15years attending our institute via outpatient department (OPD) or emergency room (ER) with clinical features suggestive of acute viral hepatitis and positive for Hepatitis A IgM titer and negative serological markers for Hepatitis E , Hepatitis B and C, without any underlying chronic liver disease were enrolled. Complete history, physical examination and investigations of all enrolled were performed and recorded on the study proforma. Patients were followed-up every 2weeks interval until complete recovery.

Result
We observed the clinical course and biochemical profile of 198 patients i.e. 128(65%) male and 70(35%) female with HAV infection. Atypical manifestations were present in 70(35.3%) patients in our study i.e. Ascites 20%(n=39),pleural effusion 15%(n=30), thrombocytopenia 10 % (n=21), skin rash 2.5%(n=5), severe anemia 2.5%(n=5), pericardial effusion 1%(n=2), aseptic meningitis 1 % (n=2) and Myocarditis 0.5 % (n=1) were extrahepatic atypical manifestations. Hepatic atypical manifestations were cholestasis6 % (n=12) and relapse 2.5 % (n=5).Most patients had simultaneous presentation of more than one atypical presentation. Most patients with atypical presentations were younger in our study i.e. 1-5years age group (p=0.047) and had higher bilirubin levels, prolonged PT & decreased serum albumin levels.

Conclusion
In our study significant number of Acute Viral Hepatitis A presented with atypical manifestation (35.3%) was found. Ascites, pleural effusion, thrombocytopenia and cholestasis were more often. Comparison with typical manifestation patients, these had higher bilirubin levels, prolonged PT & decreased serum albumin levels.

Key words
Acute hepatitis A, atypical manifestations, Pakistan

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Introduction

Acute hepatitis is a common viral infection found throughout the world and it spreads via feco-oral route. It is currently wide spread health problem in developing countries like Pakistan where poor hygienic condition are prevalent.[1] Although highly effective and safe vaccines for hepatitis A were licensed in the & 1996, HAV is still an important etiological agent of acute viral hepatitis worldwide.[2] The hepatitis A virus (HAV) is a small non-enveloped, single-stranded RNA-virus, classified as a member of the Hepatovirus genus, of the family Picornaviridae.[3] HAV is non cytopathic and cellular immune responses to the virus leads to destruction of infected hepatocytes with consequent development of symptoms and signs of disease.[4] Acute hepatitis is 7.5% of total infections in Pakistan and 50 – 60% of acute hepatitis is Hepatitis A. Almost 96% of the population is exposed to hepatitis A virus by the age of 5 years.[5]

The clinical spectrum of HAV is broad ranging from silent infection, subclinical, apparent hepatitis to fulminant hepatic failure (< 1%) which is associated with coma and occasionally death. Most of the infants and children have silent infection which is detected only by viral serological testing and subclinical infection revealed by abnormal liver tests. Mean incubation period is 30 days (range 15-50 days) then most infected persons develop nonspecific constitutional symptoms (increasing fatigue, malaise, loss of appetite, nausea, and vomiting) called preicteric phase. The preicteric or prodromal period varies in length from 1 day to more than 2 weeks (averaged 5 to 7 days) followed by icteric phase (dark yellow urine, jaundice, hepatomegaly, hepatic tenderness).[4] After icteric phase, most of the time recovery phase occurs but rarely patients may develop fulminant hepatic failure.

A variety of atypical manifestations have been observed in patients with HAV. It includes relapsing hepatitis A, cholestatic hepatitis, triggering of autoimmune hepatitis A, and extrahepatic symptoms (hemolysis, acalculous cholecystitis, acute renal

failure, pleural or pericardial effusion, acute reactive arthritis, pancreatitis and neurologic manifestations).[4, 6] In previous studies extrahepatic manifestations are reported in 6.4-8% of cases.[7, 8]

Over the last few years we have observed quite a number of hepatic and extrahepatic atypical manifestations which involve many organs systems with HAV infection in pediatric population. We conducted this study to describe the various presentations of HAV as these are associated with high morbidity and mortality and little data is available in Pakistan. Our aim was to study the atypical presentations of acute viral hepatitis A, laboratory features, relation of laboratory parameters with atypical presentations and hospital outcome of patients with typical and atypical HAV manifestations over a consecutive period of 2 years.

Material and Methods

We conducted this cross sectional study at The Children's Hospital and The Institute of Child Health, Lahore, a tertiary care referral center from December 2011 to December 2013. Informed consent was taken from parents or guardians, all children aged between 1year to 15year attending to our institute via OPD or ER with clinical features suggestive of acute viral hepatitis and positive for Hepatitis A IgM antibody and negative for serological markers of Hepatitis E, B and C. Children having evidence of chronic liver disease were excluded. Complete history and physical examination of all patients were noted and initial investigations CBC, LFTs, RFTs, PT, APTT, serum electrolytes, serum albumin, Ultrasound Abdomen and X- ray chest were done and noted in the proforma. Admitted patients were evaluated daily and after discharge they were followed in the OPD at 2 weeks intervals until complete recovery. At each visit clinical examination, complete blood cell count, serum Bilirubin, Alanine Aminotransferase (ALT) and Aspartate Aminotransferase (AST) were repeated. Atypical manifestations were noted and their frequencies were recorded. Two groups, one with typical manifestation and other with atypical manifestation were made and parameters including age, investigations values between these two groups were compared. SPSS (v.15) was used for statistical analysis. For descriptive data, mean values and standard deviations were calculated. 95% confidence interval and significant P-value <0.05 were considered. Approval from institutional review committee was taken.

Definitions

Acute Hepatitis was diagnosed with AHA according to the CDC 2008 criteria (IgM anti-HAV in a patient with suggestive clinical symptomatology, which associates jaundice or values of alanine aminotransferase (ALT) higher than 200 UI/l).[9]
Complete recovery from hepatitis A was defined as resolution of all clinical symptoms and normalization of biochemical profile within 12 weeks period.

Acute liver failure defined by acute liver injury coupled with either severe coagulopathy (INR > 2 or PT > 20sec) or encephalopathy with moderate coagulopathy (INR > 1.5 or PT > 15sec).[10]
Relapse was defined as decrease in Serum ALT level by > 50% value, followed by an increase in the value by > 50% of the minimum value or similar fluctuations in serum bilirubin level.[11]
Cholestasis was defined by elevated serum bilirubin > 2mg/dl at 3 months after the onset of illness.[12]

Results

Out of 227 patients, 198 (128 male and 70 female) patients fulfilled the criteria and completed the study, 20 patients were lost to follow up, 9 patients on further investigation, were diagnosed with enteric fever so they were excluded from study.

The present study reveals predominance in the male patients (male/female - 1.8). Atypical manifestations were present in 70(35.3%) patients and rest (64.7%) presented with typical course. Out of 70 patients, 44(62.8%) were 1-5year of age, 23(32.8%) were 5-10years of age and only 3(4.4%) were >10years. Gender and age distribution of patients with typical and atypical manifestations are given in table 1.

Most common extrahepatic atypical manifestation found was ascites 39(20%), followed by pleural effusion 30(15%), thrombocytopenia 21(10%), skin rash in 5(2.5%) and severe anemia present in 5(2.5%) of patients. Pericardial effusion and aseptic meningitis was present in 2(1%) and 2(1%) respectively. One patient (0.5%) having myocarditis as atypical manifestation of acute viral hepatitis A.

Hepatic atypical manifestations were cholestasis and relapse which were present in 12(6%) and 5(2.5%) respectively shown in Table 2. Fulminant liver failure was found in 6(3%) patients and 3(1.5%) patients expired.

Other parameters including age and investigations values between patient with typical and atypical manifestations were compared. Their mean, standard deviation, 95% confidence interval and P-value are given in table 3.

In the present study statistically significant relationship was found between patient's age, prothrombin time and albumin level. Lower age , prolong prothrombin time and low albumin were found in patients with atypical manifestations. Bilirubin levels were higher in subjects with atypical manifestations but it was not statistically significant. Fulminant liver failure was found in 6(3%) patients and 3(1.5%) patients expired.

Table 1: Age & gender-distribution of patients with typical & atypical manifestations of Hepatitis A

Gender	Manifestation	Age			Total
		1-5 year	>5-10 year	>10 year	
		Count			
Male	Typical	42 (54%)	23 (29%)	13 (17%)	78
	Atypical	32 (64%)	15 (30%)	3 (6%)	50
Female	Typical	30 (60%)	16 (32%)	4 (8%)	50
	Atypical	12 (60%)	8 (40%)	0	20
	Total	116(58.5%)	62(31.5%)	20(10%)	198

Table 2: Atypical manifestations in hepatitis A patients

Atypical Manifestations	Count (%) of Total (198)
A. **ExtraHepatic Atypical Manifestation**	
Ascites	39 (20)
Pleural Effusion	30 (15)
Thrombocytopenia	21 (10)
Skin Rash	5 (2.5)
Severe Anemia	5 (2.5)
Aseptic Meningitis	2 (1)
Pericardial Effusion	2 (1)
Myocarditis	1 (0.5)
B. **Hepatic Atypical Manifestation**	
Cholestasis	12 (6)
Relapse	5 (2.5)

Table 3: Comparison between patients with typical & atypical manifestations.

Parameters	Typical vs Atypical		*P*-value
	Atypical (n=70)	Typical (n=128)	
	Mean (SD) (95% CI)	Mean (SD) (95% CI)	
Age (years)	5(3) (4.25-5.67)	7(4) (5.13-8.03)	0.047
Serum bilirubin (mg/dl)	2.81(13.52) (9.55-16.05)	9.60(7.00) (6.88-12.31)	0.130
SGPT (IU/L)	847.55(923.68) (603-1043)	1084.00(793.68) (776-1043)	0.210
Prothrombin Time (seconds)	26.19(15.89) (22.37-30.00)	20.18(11.97) (15.53-24.82)	0.043
Albumin (gram/dl)	2.90(0.58) (2.75-3.03)	3.24(0.60) (3.00-3.47)	0.013

Discussion

HAV infection accounts for 50% to 60% of all cases of acute viral hepatitis in children in Pakistan and there has been a changing trend in developing hepatitis and in outbreaks.[13] Our vaccination against HAV is not compulsory. Majority of children get exposed to HAV by 5 years of age and the infection is uncommon in adults in developing countries.[5, 6] Although atypical manifestations has been described with HAV in pediatric as well as adult population in published literature but reported data is relatively scant from our population.[7,11,12,13 & 14] The exact mechanism for atypical manifestation is unknown, the inappropriate immune response is believed to be a possible etiological factor and appear to be immune mediated. The most common atypical presentation in our study was ascites (20%) that is similar to reports from from Chandigarh (India) documenting ascites in upto 21.5% subjects.[14]

Pleural effusion was the second most atypical presentation i.e.15%. All were related to low albumin. Pleural effusion is known to be an early and benign complication of the disease.[15] The exact pathogenesis of the effusion is unknown but it seems likely to be related with inflammation of the liver, immune complexes or secondary to Ascites.[15,16] In literature there are published case reports regarding pleural effusion as an atypical presentation.[17]

Thrombocytopenia was observed in 10%. of the subjects of which 22.1% were less than 5 years of age. Thrombocytopenia improved in all patients spontaneously. We could not find any evidence of disseminated intravascular coagulation or bone marrow suppression. In literature, it is reported that immune thrombocytopenic purpura may be the only manifestation of acute hepatitis A, without other manifestations such as jaundice,

vomiting and abdominal pain.[18]

One patient had G6PD deficiency and four subjects developed pancytopenia. Two patients recovered spontaneously with resolution of pancytopenia and two had persistent pancytopenia and severe bone marrow aplasia and later underwent bone marrow transplantation. Most cases of hepatitis associated marrow suppression are caused by non A-G viral hepatitis but cases with hepatitis A related marrow suppression has been reported in previous studies.[19, 20]

Skin rash was also found in 5 (2.5%), these symptoms were seen only during the prodromal phase of hepatitis A virus infection. Skin rash was seen in the age group of 1 – 5 years.

Pericardial effusion 2(1%) and one patient with myocarditis was also diagnosed. Previously cardiac involvement in Acute Hepatitis A has been reported in literature.[21]

Hepatic atypical manifestations were relapse and cholestasis. The clinical features during relapse in our study were similar to those in previous studies except that the second episode was milder.[22] A cholestatic phase of hepatitis A with persistently elevated bilirubin was seen in 12 (6%) patients, of whom 4 had acute liver failure and one expired due to hepatic encephalopathy. During cholestatic phase of hepatitis A virus, serum bilirubin and ALT normalize by 8-10 weeks after onset of the symptoms. In patients with cholestasis, clinical symptoms i.e. pruritis, persistent anorexia, loose stools, dark urine and weight loss persist throughout the course of illness.

Five (2.5%) patients had relapse of acute viral hepatitis in our study which was characterized by biphasic peak of serum bilirubin and transaminase levels. A second peak was noted 4 to 7 weeks after the first peak but was clinically milder than the first peak. The mean serum bilirubin during the first peak was 12.46 (range 6.18 - 18.74) and during the second peak was 10.22 (range 5.6 – 16.9 mg/dl). The mean ALT level during the first peak was 1154.54 IU/ml (range 519.69 – 1719 IU/ml); during the second peak they were 647.2 IU/ml (range 270 – 1150 IU/ml). One patient with relapse had acute liver failure, two had pleural effusion and one of them also had ascites. Relapse of viral hepatitis A has been reported in literature and the rate of hepatitis A relapse varies 1.5% to 11.9 %.[4, 23]

Fulminant liver failure was found in 6(3%) patients. Three had complete recovery and three (1.5%) patients expired. Two had typical manifestation and older than 10 years and four had atypical manifestations, one was 9 year old and 3 were less than 5 years of age. Rate of fulminant liver failure and expiries is higher in our study this may be due to the fact that the study was conducted at a tertiary care hospital which receives sick and complicated cases from remote areas and milder or less severe cases are taken care off at home or at sentinel health centers.

Children with atypical presentations were younger and had higher serum bilirubin level as compared to those who had typical course of disease, this may be because of higher rates of the diseases in this age group because of lack of vaccination & poor sanitation. Other published studies show severe disease in older age group, perhaps because of changes in socioeconomic status and improved living conditions, these countries experience an epidemiological shift of HAV infection, which has resulted in the development of many cases of adult hepatitis A. Probably our vaccination policy needs to be reviewed and updated.

In our study, HAV was associated with a variety of atypical extrahepatic and hepatic manifestations involving multiple organ system and clinicians should be aware of these early diagnosis and appropriate management. HAV cases must be fully investigated for complications and atypical manifestations should be looked for. There may be ascites and pleural effusions without generalized edema related to autoimmune process but not to low albumin. There may have neurological involvement not only because of hepatic encephalopathy but also because of aseptic meningitis. Severity and complications with HAV can affect younger children as highlighted by our study previously older children and adults were reported to be affected.

Suggestions

Hepatitis A vaccine should be considered in the EPI Program of Pakistan to reduce the risk of HAV infection morbidity and mortality.

Conclusion

A significant number of subjects with acute viral hepatitis A present with atypical manifestations like ascites, pleural effusion, thrombocytopenia and cholestasis. Children under five years of age have a higher chance of having atypical manifestations.

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ORIGINAL ARTICLE

Awareness about Infectious Hepatitis among Barbers in Lahore, Pakistan.

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Abstract

Background
Infectious hepatitis is a major public health problem especially in developing countries. The profession of barbers has been implicated in the spread of infectious hepatitis. The present study was conducted to assess the knowledge of barbers regarding how their professional practices may spread viral hepatitis.

Materials and Methods
The study was conducted from July 2012 to June 2013in different areas of Lahore, Pakistan including Aziz Bhati town, Shalimar town, Data Ganj Bukhsh town and Nishter town. One hundred Barbers were interviewed randomly and data was collected by a questionnaire and checklist. Data entry and analysis was done by using SPSS 16.

Quantitative variables (Age and Experience of Barber) were presented by using mean ± SD. Qualitative variables (education, monthly income, experience of barber and knowledge about Hepatitis B and C) were presented by using frequency table and percentage. Chi-square test was used to determine the association between age and experience of barbers with knowledge of Hepatitis B and C. p-value <0.05 was taken as significant.

Results
Age, experience of barbers, educational status and their monthly income were correlated with awareness about hepatitis B and C. A significant association was observed in awareness level with educational status while there was no significant difference between age groups and experience. Barbers who attained education up to matric or higher had better knowledge about the health hazards of their profession including skin diseases, hepatitis B and C than those that were less educated ($P < 0.05$). It was also noted that barbers with more than five years of experience had better knowledge about infectious hepatitis as compared to those with less experience.

Conclusion
Awareness level of barbers about hepatitis B and C is less. This limited knowledge is affected by their educational status, age and their work experience.

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Keywords
Awareness, Barbers, Infectious hepatitis

Introduction
Hepatitis B and C are among the major public health hazards especially in developing and under developed countries. According to an estimate, hepatitis B virus (HBV) has infected about two billion people so far and out of which 400 million are suffering from chronic infection.[1,2] Acute and chronic hepatitis, hepatocellular carcinoma and cirrhosis are results of chronic Hepatitis B and C virus (HCV). HCV has infected about 200 million people (03% of world's population) so far and out of which 170 million are chronic carrier.[3] Due to unhygienic environment, lack of awareness and education, poverty and overcrowding in developing and under developed countries, 3-4 million new cases of HCV occur each year.[4]

In Pakistan, about ten million of the population is suffering from hepatitis C.[5] Unsafe blood transfusion is considered to be a major cause of HCV transmission.[6] In countries like Pakistan, facial and armpit shavings from barbers are common and has become a potential threat for HBV and HCV infection. According to an estimate the prevalence of shaving from barbers in male population is 34-49% in Pakistan and majority of the barbers has low awareness level for the risk of hepatitis B and C transmission by the use of contaminated razors on multiple clients.[7] Other risk factors include organ transplants, therapeutic injections, intravenous drug abuse and unsafe sex, hemodialysis, vertical transmission to infants born to HCV-positive mothers, tattooing, common use of toothbrushes, razor blades, nail clippers, ear-piercing, use of unsterilized syringes and dental care units in developing countries.[8,9]

Barbers are involved in cutting hair, shaving and trimming beards, face and scalp massaging and nail trimming. Barbers in Pakistan have also been known to perform surgical procedures such as incision/discharge of abscess and circumcision in rural and urban areas.[10] Most of the barbers in our community are

uneducated and they don't know about the association of their profession with the public health hazards including communicable diseases like HBV, HCV, AIDS, HIV and skin infections like ring warm, scabies, staphylococcal infection.[11,12] The current study was conducted to evaluate the knowledge of hepatitis B and C among barbers.

Materials and Methods

A survey of barbers was conducted in 2012-2013 in different areas of the city of Lahore. A questionnaire was developed for knowledge evaluation along with a check list to note the various services and practices at barbers' shops. The questionnaire documented age, sex, educational level, monthly income, knowledge about infectious hepatitis and other infections related to their profession. We also documented work place conditions including individual cleanliness, aseptic measures for instruments especially razors, scissors and application of antiseptics before and after shave.

Statistical Analysis

Data entry and analysis was done by using SPSS 16. Qualitative variables (age, education, monthly income, experience of barber, knowledge about Hepatitis B and C) were analyzed using frequencies and percentages. To see the association between knowledge about Hepatitis B and C in relation to education and working experience of barbers, we applied chi-square test. A p-value <0.05 was taken as significant.

Results

One hundred barbers were interviewed for the study. The demographic variables are presented in table 1. Table 2,3 & 4 summarizes the distribution of barbers according to age, work experience and educational status. Washing of hands after each cutting or shave, use of new blades, disinfection of clippers and combs, use of clean towels and aprons for customers and wearing of clean clothes were seen in 52% barbers, 36% had satisfactory cleanliness and remaining 16% were ranked poor in cleanliness.

Knowledge of hepatitis B and C was significantly associated with educational status (p= 0.741), experience (p= 0.138) and age of barbers (p= 0.06).

Discussion

In the present study, it was observed that 82% barbers knew about hepatitis B and C, while 60% were familiar with the spread of infection due to reused and contaminated instruments, while 40% did not have any concept of it. According to a study conducted in Islamabad and Rawalpindi, only 13% of barbers were familiar with the risk factors of hepatitis associated with their profession.[13] Level of awareness about hepatitis B & C among barbers was found to be high by Shalaby *et al*[14] in Egypt.

Difference in awareness was also observed in different age groups. Wazir MS *et al*[15] observed that barbers between the ages of 15-25 years had better knowledge as compared to the older ones regarding risk of infectious hepatitis. However, we observed that barbers in younger age group were less knowledgeable, probably due to the educational status of the barbers.

Our findings that increased work experience and higher educational status were associated with greater awareness also corroborated by studies of Zuberi BF *et al*[4] and Wazir MS

Table 1: Demographic variables and their percentage with respect to knowledge of Hepatitis B & C.

Demographic variables	n (%)
Education	
No education	08 (08%)
Primary	20 (20%)
High School	28 (28%)
Matric	30 (30%)
Intermediate	12 (12%)
Graduate	2 (2%)
Monthly Income	
5000	14 (14%)
6000-10000	32 (32%)
11000-15000	22 (22%)
16000-20000	16 (16%)
>20000	16 (16%)
Age group	
15-25	14 (53%)
26-35	30 (62%)
>35	16 (61%)
Experience as barber	
1-5 Years	24 (24%)
>5 Years	76 (76%)
Knowledge of hepatitis B & C	
Heard about hepatitis B & C	82 (82%)
Infects liver	43 (52%)
Spread by contaminated razors	49 (60%)
Knowledge of other diseases transmitted by barber equipments	
Ring worm	12 (12%)
Head louse	22 (22%)
Staphylococcal infection	8 (8%)
Scabies	2 (2%)
All Diseases+	48 (48%)
Not Known	8 (8%)

+Means all the above said diseases i.e. ring worm, head louse, staph. infection and scabies

Table 2: Comparison of Age with Barber's knowledge of Hepatitis B and C

Hepatitis B and C mostly affect the liver			
	Yes	**No**	*P value*
15-25	8	18	
26-35	24	24	*0.06*
>35	20	6	

Hepatitis B and C can be transmitted by contaminated Razors

	Yes	**No**	*P value*
15-25	14	12	
26-35	30	18	*0.86*
>35	16	10	

Other Diseases which are Transmitted from Equipment Used in Barber's Shop

	Ring worm	**Head louse**	**Staphylococcal infection**	**Scabies**	**Not Known**	**All**	*P value*
15-25	0	4	4	0	18	0	
26-35	8	16	0	2	16	6	*0.103*
>35	4	2	4	0	14	2	

Table 3: Comparison of experience with barber's knowledge of Hepatitis B and C.

Hepatitis B and C mostly affect the liver			
	Yes	**No**	*P value*
15-25	8	16	*0.138*
>35	44	32	

Hepatitis B and C can be transmitted by contaminated Razors

	Yes	**No**	*P value*
15-25	14	10	*0.892*
>35	46	30	

Other Diseases which are Transmitted from Equipment Used in Barber's Shop

	Ring worm	**Head louse**	**Staphylococcal infection**	**Scabies**	**Not Known**	**All**	*P value*
1-5	0	2	4	0	16	2	*0.260*
>5	12s	20	4	2	32	6	

Table 4: Comparison of education with barber's knowledge of Hepatitis B and C.

Hepatitis B and C mostly affect the liver			
	Yes	**No**	**P value**
No education	1	7	
Primary	3	17	
High School	4	24	*0.741*
Matric	7	23	
Intermediate	3	9	
Graduate	1	1	
Hepatitis B and C can be transmitted by contaminated razors			
No education	1	7	
Primary	3	17	
High School	4	24	*0.003*
Matric	6	24	
Intermediate	7	5	
Graduate	2	0	

et al.[15] The barber shops are contributing in the spread of infectious diseases including hepatitis B & C as in our study 22% barbers were found to be using reused blades on multiple clients which might help in the spread of infection. Studies conducted by Bari *et al*[7]support this argument as a significant relationship was observed in HCV transmition from barbers shop.

Conclusion

Level of awareness among barbers about hepatitis B and C and its risks of transmission is low. Messages about hepatitis need to be incorporated in media campaigns, in addition to regulation of practices.

Conflict of Interest

This article has not been funded by any sponsoring agency and not been under confliction of any type.

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ORIGINAL ARTICLE

Antibiotic Sensitivity of Pathogens of Urinary Tract Infection among Adult Females in Karachi.

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Abstract

Background
Urinary tract infections are one of the important and frequent diagnosis at general practice worldwide. We aim to to investigate the occurrence of various uropathogens and their antibacterial sensitivity amongst adult females with UTI.

Methods
Total of 250 samples of mid-stream urine from female patients were collected from the outpatient department of Creek General Hospital of Korangi, Karachi. Blood agar, MacConkey and Cysteine-Lactose-Electrolyte-Deficient Agar (CLED) plates were used for culture. Antimicrobial susceptibility test was done by Kirby Bauer disc diffusion method. SPSS Version-16 was used for descriptive statistics, mainly frequency and percentages to assess categorical variables.

Results
Among 250 samples of urine culture 70% (n=175) were positive for urinary pathogen. Out of which 55 (31%) were *Escherichia coli* which is the most prevalent isolate, followed by *Staphylococcus saprophyticus* (n=8; 16%), *Klebsiella pneumoniae* (n=25; 14%), *Proteus* (n=18; 10%) and so on. High rates of resistance were observed for commonly used antibiotics like Ampicillin, ceftriaxone, cefotaxime and sulfamethaxazole.

Conclusion
Escherichia coli , Staphylococcus saprophyticus , Klebsiella pneumoniae and Proteus are the common organisms of UTI amongst adult females. High rates of resistance against commonly used antibiotics calls for antibiotic stewardship and ongoing surveillance to provide adequate and timely reports of sensitivity patterns.

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Keywords
Urinary tract infection, *Escherichia coli*.

Introduction
The most common bacterial infections in community and the hospital setting are urinary tract Infections (UTI).[1-2] It is one of the leading causes of acute renal failure. Urinary tract infection (UTI) is one of the most common bacterial infections encountered by clinicians in developing countries and cause significant morbidity and mortality.[3] Several studies from the African continent have investigated the profile of common uropathogens and the pattern of their susceptibility to commonly used antimicrobial agents in order to guide choice of empiric therapy. These studies reported the emergence of antibiotic-resistant gram negative organism with special emphasis on ESBL-producing isolates.[4-6]

Congenital anomalies of urinary tract, urinary tract obstruction, pregnancy, catheterization, instrumentation and diabetes mellitus are considered some of the predisposing factors for UTI's along with other virulence factors like neutrophil activation, haemolysins, adhesions, and capsular polysaccharides.[4, 7] The exhaustive use of antibiotics leads to the development of antibiotic resistance which becomes the major problem in the treatment of UTI's globally.[8, 9] It has been reported that comorbidities are closely related to the risk factors for ESBL UTI,[10] like travelling to Asia, Middle East or Africa up to 2 years in the past, recreational swimming.

ESBL are Gram-negative bacteria that produce an enzyme; beta-lactamase that has the ability to break down commonly used antibiotics, such as penicillin and cephalosporin and render them ineffective for treatment.[12]

Gram-negative uropathogens predominant in the intestinal tract and initially colonize peri-urethral region and the short female urethra makes them more predisposed to UTI.[13] The skin is a milieu for controlled bacterial growth. Skin supports the growth of commensal bacteria, which protect the host from pathogenic bacteria. Resident gram- positive bacteria include *Staphylococcus*, *Micrococcus*, *Corynebacterium* sp. *Staphylococcus aureus* and

Streptococcus pyogenes.[14] Staphylococcus epidermidis is gram-positive and coagulase-negative *staphylococci*. Most of the coagulase negative staphylococcal UTIs are caused by the two species *Staphylococcus epidermidis* and *S. Saprophyticus*.[15] Over the past years, the etiology and antibiotic resistance pattern of uropathogens in UTIs has been changing in both community and in health care centers.[9, 16] Therefore, we aim to investigate the frequency of various uropathogens and their antimicrobial resistance amongst females with UTI.

Materials and Methods

This study was conducted from October 2012 to Dec 2013 for a period of 15 months on patients attending the out patients department of Creek General Hospital, affiliated with United Medical & Dental College, Korangi Creek, Karachi.

In this cross-sectional study, female patients between the ages of 18–70 years with signs and symptoms of UTI were included ".

Patients who were already on antibiotics were excluded from the study.

All of the above patients mentioned were provided with a sterile & dry wide mouth container for the collection of urine samples, which were morning mid-stream specimens. On receiving the urine specimens from the patients they were immediately refrigerated at 4 to 6^0C to avoid contamination and then processed for culture within 2-3 hours of collection.

Pyuria was defined as pus in urine. It was defined as the presence of more than four leukocytes per high-power field count.[17]

Method for the Identification of Uropathogens

MacConkey agar and Cysteine-Lactose-Electrolyte-Deficient (CLED) agar plates were inoculated with semi quantitative urine culture using a calibrated loop.[6,11] Culture of a single bacterial species from urine sample at a concentration of $>10^5$cfu/ml was considered as significant mono-microbic bacteriuria. Standard biochemical methods were followed to identify the significant pathogens. Antibiotic susceptibility test were done by Kirby Bauer disc diffusion method.[18]

Results

For the period of 15 months, total of 250 female patients were enrolled. The associated symptoms identified in all these cases are presented in Table 1. Out of these patients 175, i.e., 70% of the total yielded significant bacteriuria, i.e., $\geq 10^5$cfu/ml. The frequency of *E.coli* among bacteriuric females in different age groups showed great variations as shown in Table 2. It was low in the age group of 18-28 years and 29-39 years ultimately the frequencies increased with advancing age. The susceptibility of *E.coli* to antibiotics is summarized in Table 3. They were highly sensitive to imipenam (100%), Amoxicillin/Clauvlanic acid (85%), Nitrofuratoin (88 %) and Norfloxacin (70%). Table 4 shows the urinary pathogens isolated from female patients complaining of symptoms of urinary tract infection. This table also shows that *E.coli* is the most common urine isolate.

Discussion

Urinary tract infections are one of the most common infectious disease worldwide.[19-21] Due to lack of reliable indicators of UTI, early diagnosis and appropriate treatment with antibiotics are considered the most effective key factors to eliminate the uropathogens and to prevent further complication such as urosepsis and renal scaring. Urinary tract infection can be either asymptomatic or symptomatic.[22] Bacteriuria with classical symptoms such as frequent urination, burning micturition and fever is referred as symptomatic UTI,[23] whereas bacteriuria without classical symptoms is called asymptomatic UTI.[24,25]

The present study shows that *E.Coli* is the predominant cause of UTI amongst the outpatients. *Staphylococcus saprophyticus* being the next UTI causing pathogen followed by *Klebsiella pneumoniae, Proteus* spp., *Staphylococcus epidermidis, staph-aureus* and *pseudomonas*. Our study indicates that *E coli* are still the most predominant cause of UTI among outpatients. This corresponds with the data obtained by other investigators.[1, 26,27]

The resistance of *E coli* data is similar to those obtained in other countries indicating that *E coli* is still resistant to many antimicrobial agents.[28-30] In the current study, among patients, a high percentage of isolates showed resistance to sulfa drugs such as Sulpha methoxazole. While Amoxicillin/Cluveinic acid, Imipenam and Norfloxacin were found to be effective against *E. coli, Klebsiella pneumonia, Pseudomonus aeruginosa*.

Table 1: Distribution of Associated Symptoms of UTI in Female Patients

Symptoms	Female (%)
Frequency of Urination	142 (81)
Burning Micturition	131 (75)
Flank pain	121 (69)
Dysuria	66 (38)
Pyuria	36 (20)
Hematuria	35 (20)

Table 2: Age-wise frequency of E. Coli UTI among study population

Age	18-28 years	29-39 years	40-50 years	51-61 years	$\geq$ 62 years
N (%)	6(11)	8 (14)	10 (18)	14 (25)	17 (31)

Table 3: Sensitivity of Escherichia coli (%)

Drugs	Sensitive
Ampicillin (10 µg)	33
Ceftriaxone (30 µg)	22
Nitrofuradantoin (30 µg)	89
Norfloxacin (10 µg)	71
Sulphamethoxazole (300 µg)	21
Ceftazidime (15 µg)	22
Cefotaxime (30 µg)	22
Amoxicillin/Cluveinicacid (20/10 µg)	85
Imipenam	100

Table 4: Urinary Pathogens Isolated From Female Patients Complaining Symptoms of Urinary Tract Infection (n=175)

Urinary Pathogen	Positive (%)
Escherichia coli	55 (31)
Staphylococcus saprophyticus	28 (16)
Klebsiella pneumoniae	25 (14)
Proteus vulgaris	18 (10)
Staphylococcus epidermidis	20 (11)
Staphylococcus aureus	16 (9)
Pseudomonas aeruginosa	10 (5)
Enterococci	1 (1)
Enterobacter	2 (1)

Antibiotic drug resistance in uro-pathogen may be due to overuse, abuse and at times misuse of these agents due to wrong diagnosis and empirical prescription without urine culture.[29] Increased globalization could contribute to the spread of drug resistance. Appropriate knowledge on uropathogens and their antibiotic susceptibility is mandatory to ensure proper treatment of UTIs.[32] Multi-drug resistant spread locally as well as globally as a part of rapid globalization.[33]

IInitial treatment for UTIs can be started before the availability of diagnostic test results such as urine culture and antibiotic sensitivity test, if surveillance data is available. These data are important for knowing the trend of antibiotic resistance to aid in the selection of accurate drugs for the treatment of UTIs.

This study reveals increased resistance amongst uropathogens in this region. Such information may also aid health professionals to choose appropriate treatment for UTI patients in the region and limit the misuse of antibiotics. However, in this metropolitan City of Karachi, continued surveillance at both local and National levels is necessary to identify appropriate empirical therapy for UTIs.

Conclusion

E.coli is still the commonest organism of UTI in adults females. There is increasing resistance to all commonly used antibiotics, especially 3rd generation cephalosporins and this calls for appropriate antibiotic stewardship to reduce antibiotic misuse and antimicrobial resistance.

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Frequency of Bacterial Meningitis amongst Children Presenting with Fever and Fits.

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Abstract

Background
To determine the frequency of bacterial meningitis and other diseases in children presented with fever and fits.

Methods
A prospective cross sectional study was conducted jointly at the Creek General Hospital of United Medical and Dental College, and National Institute of Child Health, Karachi from December 2012 to November 2013. Children suffering from fever fits and altered sensorium (age group 3 months to 5 years), were examined. Detailed history and physical examination followed by a lumbar puncture for Cerebrospinal fluid (CSF) leukocyte count/µL, gram staining and culture sensitivity along with blood tests, complete blood count (CBC), random blood glucose (RBS), serum electrolytes & serum calcium to rule out other causes of seizures like aseptic meningitis, encephalitis, febrile fits and sepsis. Bacterial meningitis was diagnosed if CSF leukocyte count was >10/µL with low CSF glucose and high protein. SPSS V-16.0 was used for descriptive statistics, frequency and percentages are reported for categorical variables.

Results
Among 249 children, meningitis was suspected in 83 (33%) children based on CSF leukocyte (CSFL) count >10 cells per µL alone. Amongst these 83 suspected children, 52 children were diagnosed as having bacterial meningitis (BM) due to the presence of one of the three indicators:

i) CSFL >10/µL (n=16),
ii) Positive gram stain (n=18) and
iii) Isolation of a pathogen on CSF culture (n=18).

Twenty four children were diagnosed as having aseptic meningitis and 7 as encephalitis. While, 166(67%) out of 249 had other causes of seizures like febrile fits, metabolic fits and sepsis. Streptococcus pneumoniae was identified as the commonest pathogen for bacterial meningitis.

Conclusion
A significant number of children with fever and seizures may be suffering from meningitis which can easily be identified and treated. Furthermore, occurrence of streptococcus pneumoniae as the commonest pathogen for BM is alarming and has policy implications for stressing on the value of vaccination against this pathogen.

Key Word
Bacterial Meningitis, Lumber Puncture, Febrile Fits.

Introduction

Acute meningitis remains an important cause of death and neurological sequelae in children, especially in developing countries.[1] Early recognition of meningitis among young children is often difficult.[2] The classical signs of meningitis are usually absent in the first year of an infant's life. Lumbar puncture has long been a key procedure for investigation. Thus, it is advocated for any infant, who is drowsy or ill, without awaiting the development of meningeal signs.[3] However, perceived dangers of lumbar puncture have restricted this procedure.[4] Therefore experts stress on the value of CSF to avoid the possibility of missing meningitis that could have serious acute and long term consequences.[4]

In general practice, lumber puncture and CSF analysis done for the patients of febrile fits, confirms or excludes meningitis. It is rare that the microscopic examination of CSF gives normal picture (Leukocyte <10/µL), and a pathogen will grow later except for infrequent cases of meningococcal meningitis (up to 8%). [5] Children with clinical signs of meningococcal sepsis should receive antibiotics despite a normal CSF. In an earlier study, the suggestion that lumbar puncture during bacteremia may itself cause meningitis, remain controversial and unproven.[4]

Initial Gram staining of CSF reveals the presence of organism in 68-80% of cases of suspected meningitis allowing appropriate choice of antibiotics.[6] Subsequent culture gives information on antibiotic resistance, which is especially important in areas where antibiotic resistant *Pneumococci* are prevalent.[7]

Few children with clinical signs of meningitis will have another condition (for example, tumor, abscess or intracranial

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hemorrhage). Lumbar puncture in this situation would result in a high risk of herniation of brain tissue.[8] The presence of focal signs, depressed consciousness, or failure to respond to treatment is thus an indication for an urgent CT scan to exclude these conditions.[9]

American Academy of Pediatrics consensus statement recommendations are to consider lumber puncture for CSF analysis, strongly for infants 6 to 18 months of age exhibiting the first episode of simple febrile seizure.[10] In this context, the present study was carried out and based on the clinical features and routine investigation of CSF analysis to either rule out or confirm meningitis. It is expected that it will help in the early treatment to prevent the long lasting sequel of the Bacterial meningitis (BM) so as to reduce mortality in a reasonable percentage of the children presenting with fever and fits.

Methods

This was a cross-sectional study conducted with the approval of ethical committees of Creek General Hospital Korangi (CGK) and National Institute of Child Heath (NICH), Karachi from December 2012 to November 2013. A total of 249 patients were examined in NICH (190) and CGH (59). All children aged 3 months to 5 years (both sexes) who visited the emergency departments of above mentioned institutes with complaint of fever , fits and altered sensorium, were enrolled. An informed verbal consent was obtained from the parents/guardians for the procedure of lumber puncture. Children with past history of febrile fits, cerebral palsy, mental retardation and other known neurological conditions were excluded. A detailed history and pertinent clinical examination was done to establish a clinical diagnosis of meningitis. CSF samples were transported to the laboratory within 5-10 minutes. Study participants with CSF leukocyte count of <10/µL were labeled as not having meningitis and remaining CSF samples (CSF leukocyte count >10/µL) were subjected to gram staining and culture sensitivity to confirm the diagnosis of BM. All the CSF samples were analyzed using standard techniques at the laboratories, affiliated with the respective institutes.

Positive CSF culture with a positive gram stain, and/or CSF total leukocyte count >10/µL were considered the indicators for the diagnosis of BM. The possibility of meningitis was also considered in cases where both CSF culture and gram staining were negative but CSF total leukocyte count was >10 with low glucose and high protein. Serum samples were also sent for blood sugar, electrolytes, creatinine and calcium to rule out metabolic causes leading to convulsions. Acute fever with tachycardia, hypotension or leukocytosis on CBC was the criteria for labeling a case with diagnosis of septicemia.[11] Categorical data including age, CSF result, type of pathogen and causes of fits were collected and analyzed on SPSS 16 using descriptive statistics, frequencies and percentages.

Results

A total 249 children came with complaints of fever and fits, 83 were found to have either meningitis or encephalitis. While 166 children had causes other than -meningitis or encephalitis. The underlying diagnosis of all subjects with fever and fits is shown in table 1.

Out of 166 children, 158 had CSFL <10µL, and thus categorized as febrile fits only. However, the remaining 7 non infected children showed metabolic fits diagnosed on the basis of serum hypocalcaemia (serum Calcium < 8.5 mg/dl). There was only one case of sepsis amongst these children (table 1) who did not have coexistent BM.

Most (33%) children with meningitis were between the age of 6 months to 1 year (table 1) in all of the other age groups, the most common cause of fever and seizures was febrile fits (64%) followed by BM being 20.8%.

Table 1: Underlying diseases among children presenting with fever and fits in different age groups (n = 249)

Age Groups	Meningitis/Encephalitis (n=83)			Non-Meningeal/Non-Encephalitic (n=166)			Total N (%)
	Bacterial Meningitis	Aseptic Meningitis	Encephalitis	Febrile Fits	Metabolic Fits	Sepsis	
3 to 6 months	15	2	-	18	5	1	41 (17)
6 months to 1 year	17	10	3	63	-	-	93 (37)
1 to 2 year	9	9	2	42	1	-	63 (25)
2 to 5 year	11	3	2	35	1	-	52 (21)
Total N (%)	52 (20.8)	24 (9.6)	7 (2.8)	158 (63.5)	7 (2.8)	1 (0.5)	249 (100)

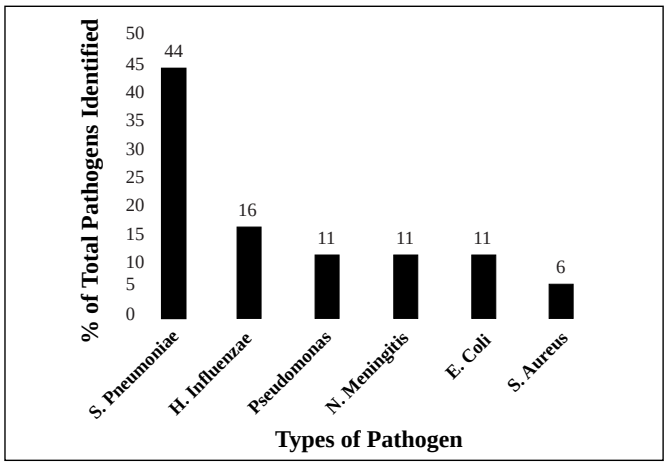

Fig 1. Percentage of various pathogens Identified in cases of bacterial meningitis.

An account of the frequency of various types of pathogens related with BM has been presented in Fig. 1. Out of total 52 cases of BM, only 18 (35% yield) cases showed the presence of various pathogens. Out of them commonest pathogen was *Streptococcal pneumoniae* (44%).

Discussion

This study demonstrated febrile fits & BM were highest in patients <1year. *Streptococcus pneumoniae* was identified as the commonest pathogen causing BM.

BM is the most serious manifestation of bacterial infections in children accounting for high mortality and morbidity. The yield of CSF gram stain is high for *pneumococcal* and *meningococcal* meningitis, for other pathogens it remains questionable. However, one of the studies reported them along with likelihood ratios for the various other indicators like CSF, C-reactive protein, gram stain, and Latex (LAT) agglutination have also been reported to be of some utility in establishing a diagnosis of BM.[12]

The present study focused on the importance of CSF in children with fever and fits to rule out the risk of meningitis. However, occurrence of BM in our study is more or less similar to earlier studies.[13-15]

In addition, microbiological test for gram positive organisms done in the present study demonstrated growth of pathogens in 18 cases corresponding to a yield of 35%. An earlier study showed 23 cases of culture based BM which was about 7% of the total 309 children examined.[16] According to a study,[17] a large number (n = 4,113) were culture-negative for three pathogens *N. meningitidis, H. influenzae,* and *S. pneumoniae,* which were detected by using PCR. This procedure gave a yield of 88.4%, 100% and 91.8% for *Neisseria meningitis, H. influenza* and *Streptococcus pneumoniae*, respectively. In our setting PCR is not feasible because of economic constraints. *Streptococcal pneumoniae* is the most prevalent organism in the present cross sectional study, highlighting the importance of vaccination against this pathogen to prevent serious illness. Two third of our subjects had an underlying diagnosis of febrile fits, this proportion is similar to earlier reports.[18]

Regarding the age group of children presenting with fever and fits, the peak incidence was found in the age group of 6 months to one year. Howeve, in one of the earlier study,[19] BM was reported to be maximum in children younger than two months. We have not included the children less than 3 month of age because of our limitations.

Detection of pathogens is one of the important procedures to diagnose BM. It can be done either by employing culture and sensitivity tests or sophisticated PCR analysis. However, one of the major limitations in this study was that we might have missed a significant number of cases because of lack of availability of additional diagnostic methods like latex agglutination and PCR.

Conclusion

A significant number of children with fever and seizures may be suffering from meningitis which can easily be identified and treated. Furthermore, occurrence of streptococcus pneumoniae as the commonest pathogen for BM is alarming and has policy implications for stressing on the value of vaccination against this pathogen.

Acknowledgment

Thanks due for Dr. Muhammad Abdul Azeem, Professor of Physiology, United Medical & Dental College for critical review and finalization of this paper.

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CASE REPORT

Neonatal Dengue Fever; A differential for an Acute Febrile Episode in Neonates.

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Abstract
Acute febrile illness in a neonate is almost always presumed to be secondary to neonatal sepsis. With dengue being endemic in most of the continents of the world there is emergence of more and more adults being affected. Pregnant women and their fetus are also susceptible; either through vertical transmission or by directs postnatal acquired infection. Neonatal dengue should be considered as a differential diagnosis in neonates presenting with acute febrile illness with or without hemorrhagic manifestations particularly in the dengue season. Here we report a case of a term 7 day old, male neonate with three day history of fever. Mother developed fever prior to delivery and was still febrile at the time of delivery. He was initially managed on the lines of septicemia. However later the antibiotics were discontinued as, dengue antigen came out positive. He was managed conservatively and was discharged in a stable condition.

Introduction
Dengue infection has become a major public health problem in tropical regions.[1] Dengue virus is spread by mosquitoes, causing variable manifestations, ranging from asymptomatic infection to flulike illness in dengue fever and sometimes severe hemorrhage resulting in shock and death in dengue hemorrhagic fever.[2] Annually 25000 people die because of dengue infection; however approximately 50million individuals being affected worldwide.[3] As per WHO in the last 50 years, incidence has increased 30-fold.[3] It is an arthropod borne virus endemic to most continents of the world except Europe. Geographical distribution of the disease is such that dengue and dengue hemorrhagic fever are present in South-East Asia urban and suburban areas in the Americas, the Eastern Mediterranean and the Western Pacific and dengue fever is present mainly in rural areas in Africa.[4] It is caused by four different serotypes; DEN1, DEN2, DEN3 and DEN 4. There is no to minimal cross protection and therefore immunity is obtained after being infected by each serotype.[5] Being infected repeatedly, increases the likelihood of dengue hemorrhagic fever and dengue shock syndrome. The disease has an incubation period of 3-14 days.[3]

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The possibility of maternal-fetal transmission of the virus is now recognized but the wide range of clinical signs may delay the diagnosis in an infected neonate. For 20 years since the first case of vertical transmission of dengue have been reported in French Polynesia, several cases have been reported in Thailand, Bangladesh, Puerto-rico , the Sri Lanka and in French Guiana and Guadeloupe, which allowed a better understanding of the consequences on the newborn with dengueinfection contracted during pregnancy, especially during the 3th quarter.[6] In the systematic review of Pouliot *et al*., on maternal dengue and end products of gestation, maternal death from dengue occurred in 2.9% of a series of 137 cases of mothers and in none of 25 cases reported separately in the literature, which shows that maternal death from dengue is a rare event. One of the studies shows incidence of vertical transmission to be 1.6%.[7,8]

The clinical manifestations described in neonatal dengue range from asymptomatic to manifestations such as thrombocytopenia, hepatomegaly and severe forms with pleural effusion, ascites, bleeding, circulatory and multiple organ failure. Most cases of dengue in fetuses and neonates survived without sequel.[9,10]

Neonatal dengue is rather rare or is not reported as often.[5] Therefore, the objective of this case report is to raise awareness to the awareness about the possibility of mother-child transmission of dengue, which initially affects the newborn presenting a clinical picture similar to neonatal sepsis, thus leading to the possibility of not being diagnosed. We are reporting a neonate delivered to a mother who had a febrile illness a couple of days prior to delivery and delivered baby boy who developed acute dengue fever.

Case History
A 7 day male, term baby admitted with the complaints of fever for the last three days. Fever was high grade, documented up to 102 to 103^{0}F. Otherwise the baby had normal activity and was feeding well. There was no complains of vomiting, loose motions or body rashes. He was born to a 28 year old mother, she had experienced a febrile illness during the last 2 days of her pregnancy for which she had not undergone any workup or treatment. Fever lasted 2 days after delivery and was high grade, associated with severe body ache, myalgia and arthralgia. There were no body rashes and there was no history of leaking.

The baby was born via a spontaneous vaginal delivery at a local hospital. Post-natal course remained uneventful.

He was in a healthy state so was discharged with his mother on the same day. He remained well until fever developed on the 4th day of life. At the time the baby came to us his 4 year old sister was undergoing treatment at a local hospital for suspected dengue. On examination this was a 3.3 Kg baby with mottled skin and fair neonatal reflexes with a heart rate of 158 beats/min and respiratory rate of 52 breaths/min. He was febrile (38.5^0C) with poor neonatal reflexes (ill sustained sucking reflex). His peripheral perfusion was more than 3 seconds. Liver was not palpable and there were no body rashes.

Initial impression was that of neonatal sepsis, but keeping in mind the siblings presumptive diagnosis of dengue fever dengue antigen was sent alongside septic workup so to exclude dengue fever. Treatment was started in the line of sepsis. Baby was kept nil per oral with IV fluids, parenteral Cefotaxime and Amikacin was started. On the first day of presentation, baby continued to have fever upto 101 to 102^0F. He developed issues of tachycardia, mottling and poor perfusion which responded to fluid boluses. Blood picture showed hemoglobin of 16.2g/dl, hematocrit of 45.6, leucopenia with total leucocyte count of $4.5x10^9$ and thrombocytopenia with platelet count of $85 x10^9$. On day 2 antibiotics were stepped up to Vancomycin and Meropenum. Meanwhile dengue antigen came back positive confirming the diagnosis of neonatal dengue. Repeat platelet count was found to be 90,000; PT APTT were deranged so fresh frozen plasma was transfused. On day 3 platelet count fell further to 49,000, along with blanching. Baby developed ecchymosis all over the body and so platelets were transfused with repeat count post transfusion showing a rise to 98,000. Fever subsided on the 3rd day of admission with no evidence of plasma leakage. Baby was hemodynamically stable, direct mother feed was established and fluids were discontinued. Seventy two hour cultures showed no growth and so antibiotics were discontinued and he was discharged on the 11th day of life. Mothers dengue serology was planned for possibility of vertical transmission but respecting the family's decision for no further laboratory workup the serological tests were deferred.

Discussion

Till date not many cases of neonatal dengue have been reported worldwide. A case series based on 17 cases of neonatal dengue was among the longest case series published with regards to neonatal outcome. However with the vector control getting poorer there is increase reporting of neonatal transmission worldwide. Vertical transmission is one of the manifestations of the dengue fever. Most of the reported cases were from Asia (n=10; mainly from Malaysia and Thailand), while rest from Europe and Latin America. Case reports from other countries including Sri Lanka, French Guiana, Cuba, and India have been published. There is no published literature on neonatal dengue fever from Pakistan. Although this report constitutes the first case report of neonatal dengue from Pakistan, the actual occurrence cannot be ascertained by the number of reported cases as in our view neonatal dengue remains to be underreported, more so underdiagnosed. Most cases of neonates presenting with fever continue to be misdiagnosed and managed in the lines of neonatal sepsis.

The longest case series mentioned describes fever and thrombocytopenia being the commonest presentation for all 17 neonates which was also true for our case. Most neonatal case reports are based on neonates proven to have vertical transmission through positive serological tests done in the mothers during febrile illness. In another case report they hypothesized the neonate to have vertical transmitted dengue through confirmed maternal infection close to delivery, 5 day incubation period and absence of Aedes Egypticus focuses nearby the hospital and also absence of other cases of dengue. In our case however it remains to to be confirmed whether this was a case of vertical transmission or that of postnatal acquired dengue. Maternal Infection could not be confirmed through serological testing respecting the family's decision for no further laboratory workup. Also the concomitant confirmation of dengue IgM coming back positive in the neonates' sibling makes postnatal acquired infection more likely.

Conclusion

Acute febrile illness in a neonate is almost always presumed to be secondary to neonatal sepsis. Neonatal dengue should be considered as a differential diagnosis in neonates with maternal fever a week prior to delivery and their newborn presenting with acute febrile illness with or without hemorrhagic manifestations in endemic areas of the world.

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CASE REPORT

Varicella Encephalitis in an Immunocompetent Child: A case report and review of literature.

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Abstract
Varicella has been known to have an uncomplicated course in early childhood, however, several neurological complications including encephalitis may occur. Significant neurological involvement in immune competent children following *Varicella* Zoster Virus (VZV) reactivation are exceptionally rare. We are reporting a case of seven year old immunocompetent boy who developed encephalitis post *varicella* (chicken pox) infection. He was treated with intravenous acyclovir. His lumber puncture showed raised TLC counts with predominant lymphocytes. Blood and CSF cultures showed no growth. He responded well to treatment, discharged and followed in the clinic without any neurological sequelea.

Key words
Varicella encephalitis; Immunocompetent; Seizures; Children

Introduction
Varicella or chickenpox is a benign contagious disease, caused by double stranded DNA virus.[1] The viral prodrome characterized by fever, headache, nausea and vomiting, lethargy, and myalgia is quickly followed by a rash. The rash of chickenpox is vesicular and appears after the fever. The rash appears in "crops" of vesicles during the first 3 days. After the 3 days of successive crops, few or no vesicles appear thereafter. The vesicles of chickenpox appear to be fragile and superficial, and are surrounded by an erythematous halo. Distribution of the rash is primarily central as it arises from the trunk and spreads somewhat centrifugally during three days of successive vesicular crops. The high degree of communicability of chickenpox during early childhood (generally 2-8 years of age) can be appreciated by the presence of protective antibodies in 85-90% of children.[2]

Even though complications involving the central nervous system (CNS) are rare following natural VZV infection, VZV was found to be the most common etiological agent associated with encephalitis, meningitis and myelitis. Encephalitis is the most common neurologic manifestation of chickenpox. The clinical spectrum of encephalitis ranges from mild to fatal. Cerebellar ataxia resulting from chickenpox is a less common central nervous system (CNS) complication.[3] The most uncommon CNS manifestation of chickenpox is viral (aseptic) meningitis, which constitutes 5-10% of CNS complications.[4] A retrospective study carried in Pakistan on oncology patients showed that young age, poor health-seeking behavior, severe neutropenia, and being underweight are the major risk factors for the development of *varicella*-related complications in children in developing countries. These complications could be favorably modified through active immunization of immunocompetent children. We present a case of an otherwise healthy child who developed *varicella* encephalitis followed by literature review.

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Case history
Our patient was a seven year old boy who presented to the emergency room with history of fever and seizures for 3 days. He came with fever, which was high grade, continuous, not associated with any rigors and chills, relieved on taking antipyretics. There was associated complains of headache, vomiting and generalized body weakness. There were multiple episodes of seizures that were generalized, tonic clonic, with up rolling of eyes, frothing from mouth, stiffness of all four limbs and urinary incontinence. The child had developed a vesicular rash seven days back which were now scabbing and were of multiple ages.

Examination findings included a pale, sick looking, afebrile, moderately dehydrated, irritable child otherwise vitally stable. His weight was below 5th centile and height was at 25th percentile. CNS examination revealed GCS of 14/15, child was alert and oriented to time, place and person with signs of meningeal irritation present. Chest was clear with bilaterally equal air entry on auscultation. Abdominal and cardiovascular examinations were unremarkable.

Laboratory workup including complete blood count, C - reactive protein and electrolytes were unremarkable. A lumbar puncture done showed normal CSF glucose and protein with a raised TLC count (10/µmm) with a breakup of 80% lymphocytes and 20% polymorphs. An initial impression of *Varicella* encephalitis was made so and the child was started on IV acyclovir and dexamethasone.

Later because of recurrent seizures he was started on phenytion. The CSF Herpes Simplex Virus PCR came out to be negative as well as the CSF culture showed no growth. However, as the seizures were continued an EEG and MRI were done. The EEG showed diffuse delta and theta slowing. MRI with contrast showed abnormal T2 and FLAIR hyper intense signals in cortical gray matter and left basal ganglia with post contrast

meningeal enhancement suggesting meningioencephalitis (Figure 1). In view of the continuing seizures in spite of IV

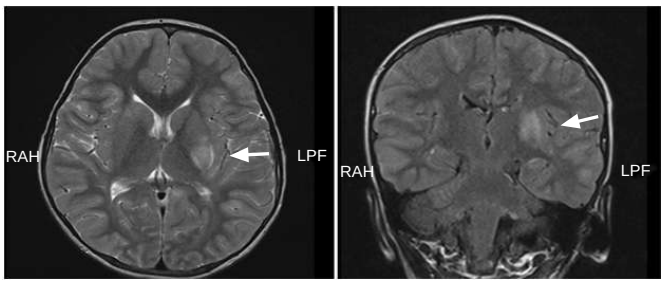

Fig 1. MRI with contrast showed abnormal T2 and FLAIR hyper intense signals in cortical gray matter and left basal ganglia with post contrast meningeal enhancement suggesting meningioencephalitis.

phenytoin, the child was commenced on double and then triple antiepileptic regimen after which satisfactory seizure control was achieved. When the child remained seizure free for 24 hours, he was shifted to general care where IV acyclovir was continued. His antiepileptics were gradually tapered off and the child was discharged on oral Divalproate 250 mg every 12 hourly with instruction to follow up in neurology clinic. Intravenous acyclovir was given for a total of 14 days.

Discussion

Varicella is an acute exanthematous and highly contagious disease that occurs mostly in childhood. Although *varicella* is known for it's uncomplicated course in early childhood, several complications may occur. The range of complications vary depending on the immune status and underlying chronic diseases. Immune compromised individuals are at increased risk of dissemination of the virus to the internal organs, including lungs, liver, brain, heart, and kidneys. However, immune competent individuals may experience complications as well.[5]

Of all reported patients hospitalized with *varicella*, 21.7% developed neurological complications.[6] The neurological complications of *varicella*-zoster virus (VZV) may be categorized into those caused by the primary infection and those associated with virus reactivation. The latter is more frequent among elderly individuals and immunocompromised patients.[7] Significant neurological involvement in immunocompetent children following VZV reactivation is exceptionally rare. Neurological complications may include post infectious encephalitis, acute cerebellar ataxia, acute myelitis, and stroke or stroke-like episodes, meningitis, encephalitis, myelitis, and vasculopathy.[8]

The pathogenesis of VZV encephalopathy is not fully understood. The pathogenic mechanisms which have been proposed suggest a direct invasion of the central and peripheral nervous system by the virus. It may occur during primary or secondary viremia, leading to clinical manifestation of VZV encephalopathy prior to, simultaneous with, or after the skin rash.[9]

The diagnosis of *varicella* is generally based on a clinical evaluation of the typical rash by the physician.[10] In few cases, laboratory testing, such as serology, polymerase chain reaction testing of skin vesicle fluid or of blood, or culture from a vesicle swab, are required to confirm the diagnosis.[11] As in our patient cerebrospinal fluid cultures and polymerase chain reaction were negative and our diagnosis was based on the the history and clinical presentation.[12] Table 1 shows the published cases of *Varicella* encephalitis along with their clinical and laboratory characterstics.

Inclusion of diffusion weighted image sequences of a routine MRI has a significant value in detecting the pathologic changes that occur following viral invasion of CNS. Treatment of *varicella* neurological complications in immunocompetent is not established by international guidelines thus physicians on their own discretion decide whether a child should receive intravenous acyclovir and/or steroids. [13]

Conclusion

Varicella encephalitis is not uncommon in immunocompetent children. Seizures are common however majority of children recover fully.

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Table 1: Literature Review of Immunocompetent children with *Varicella* encephalitis

References/ Year	No. of children	Presenting complaints/Lab confirmation	Outcome
Mørch K. 2003 [14]	364	Headache seizures CSF DNA PCR performed in 364 patients → 5 positive 4 → reactivated VZV infection. 2 → meningitis immunocompetent individuals 1 → myelitis without shingles 1 → zoster radiculitis.	289 → 79%Seizure free 70 → 19.3%focal seizures 5 → 1.7% developmental delay
Koturoglu G. 2005 [15]	178 patients Median age → 3 yrs M=F	Fever rash and seizures CSF PCR Neurological complications 68 (38%) patients Encephalitis → 17(9.5%)	Seizures free
Chiappini E. 2002 [16]	2y/F	Radiologic findings were consistent with large to medium-vessel-vasculitis. VZV-DNA was detected in cerebrospinal fluid.	Seizures
Häusler M. 2002 [17]	4y/F 16m/F	Rash and focal epileptic seizures Diagnosis → clinical features IgG seroconversion CSF antibodies against VZV	1 seizure free 1 developmental delay
Chouliaras G. 2010 [18]	3 ½ y/F	Rash and fits CSF PCR Molecular analysis	Complete recovery
Spiegel R. 2010 [19]	14 y/F	*Varicella*-Zoster virus DNA was detected in cerebrospinal fluid and magnetic resonance imaging (MRI) findings	near-complete neurological recovery
Ravid S. 2012 [20]	Total patients → 3 9y/ M 15y/F 11y/M	Pseudotumor cerebri Diagnosis: CSF PCR	All discharged home healthy

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The Polio Fiasco in Pakistan, 2014

Poliomyelitis is a vaccine-preventable, enteroviral infection which can cause death or crippling paralysis, predominantly in young children in endemic areas. Up to95% of infections are subclinical; 0.1% areparalytic.[1] Immunity after infection or vaccination is type-specific.[2]

Pakistan has the dubious distinction of being one of the 3 countries in the world where polio eradication has failed.[3] Inadequate coverage, lack of potency because of failure to maintain the cold chain, inaccessibility because of political unrest or militancy and vaccine refusal are some of the contributory factors.

"From a humanitarian perspective, eradication provides the ultimate in health equity and social justice, bringing identical and universal benefits to every person globally".[4] In Pakistan, we are very far from attaining this ideal.

One way of achieving protection against polio, which is seldom mentioned, subscribed or targeted, is provision of clean potable water, safe disposal of excreta and meticulous practice of hand hygiene by everyone, at all times. While these remain untargeted and presumably unattainable in the foreseeable future, the next best strategy is vaccination.

Let us examine how safe and effective the currently available oral and injectable polio vaccines are?

Oral Poliovirus Vaccine (OPV)
Live attenuated,mono-, bi- and trivalent vaccines are available of which the monovalent type is the most immunogenic. Although, after the third dose, the prevalence of protective antibody can be > 96%,[5] many infants in tropical countries are left unprotected following receipt of the recommended number of OPV doses because of low serocon version rates.[6,7] This poor response has led to outbreaks in countries with high immunization rates.[8]

Monovalent types 1 and 3 OPV vaccines have been introduced via supplemental immunization activities (SIAs) into many areas where wild-type polioviruses continue to circulate. In Pakistan, bivalent vaccine containing serotypes 1 and 3 were introduced through SIAs in 2008-2009.[9] Since then, no WPV3 cases have been documented; probably it has been completely eradicated from Asia.[10]

An important question is: how many doses of vaccine are actually protective? Nearly 100% OPV coverage with 10–15 doses (versus 3-4 doses according to schedule) per preschool child, given in EPI activities and through SIAs, have been found to be protective.[11] This observation has not yet led to a change in EPI schedule; SIAs remain the sole means of ensuring that susceptible children receive the 11-12 additional doses of OPV which are required for reliable protection.

The incidence of vaccine-associated paralytic poliomyelitis (VAPP) was once considered low enough to qualify OPV as "one of the safest vaccines in current use" by WHO.[13] In the pre-EPI era, 600,000–800,000 cases of polio occurred annually in developing countries. "Many experts accepted VAPP as a price for the greater benefit of controlling wild poliovirus using OPV. The countries themselves, however, had no opportunity to make an informed choice between vaccines".[12] Are we in a position to make an "informed choice" now?

With progress towards eradication, VAPP has now become more frequent than polio attributable to wild poliovirus infection.[12,14]

IPV needs to be given where OPV efficacy is limited by intercurrent diarrheal diseases.[15]

Inactivated Poliovirus Vaccine (IPV)
Seroconversion rates are equal to, and mean antibody titers are superior to those of OPV when given according to the same schedule. Antibodies to all three types are detectable in 100% after the third dose.[5] Current IPVs are more immunogenic than the original Salk vaccine and are called enhanced potency IPV (eIPV).

When challenged with live polioviruses, IPV-immunized children may shed the virus in their feces at a higher rate and for a longer period than OPV-immunized children, indicating a greater potential for asymptomatic infection and transmission.[16,17] Nonetheless, IPV can reduce the quantity and duration of virusshedding in stool samples, which may contribute to a reduction in transmission.

OPV strategy for preventing polio has two main drawbacks: vaccine-associated paralytic poliomyelitis (VAPP) and evolution of vaccine-derived poliomyelitis viruses (VDPV). The estimated incidence of VAPP is 2–4 cases/million birth cohort per year causing up to 500 cases each year in countries where OPV is used. Approximately 50% of VAPP cases are recent OPV vaccines, most of whom develop paralysis (as a result of attenuated virus regaining neurovirulence within the gut) 7 to 21 days after the first dose.[5] A similar number of VAPP cases occur among non-immune close contacts including parents, family members or baby sitters who may develop paralysis 20 to 29 days after the administration of OPV to a close contact. For immunocompetent patients, the clinical features and outcome of VAPP do not differ from disease caused by naturally occurring polioviruses. OPV virus types 3 and 2 are more common causes of VAPP.[5] In lower-income settings; the age at onset of VAPP is higher and is associated with subsequent OPV doses, mainly due to lower immune responsiveness to OPV and higher

prevalence of maternally-derived antibody.

VDPVs that arise during persistent infection of immunodeficient individuals are termed iVDPV. VDPVs that evolve during continuous transmissionsof vaccine virus among unvaccinated individuals inpopulations with low vaccination coverage are called "circulating VDPV" (cVDPV).[18,19]

One strategy for reducing VAPP and cVDPV and increasing immunogenic response to vaccine has been introduction of bivalent OPV. The main drawback of this strategy is creation of a cohort of children with no immunity to polio virus type 2. Indeed, the risk of cVDPV poliomyelitis has increased dramatically over the years and is associated with increased transmission of OPV- 2[18] secondary to low immunization rates.[19,21]

"The emergence of VDPV has profoundly influenced plans for the eventual cessation of poliovirus immunization following eradication of poliomyelitis, which will now include a strategy to discontinue OPV use worldwide and introduce IPV into as many countries as feasible".[22] Indeed, the Polio Eradicationand Endgame Strategic Plan 2013–2018 now includes the introduction of at least one dose of IPV into routine immunization schedules as a strategy to mitigate the potential risk of re-emergenceof type 2 polio following the withdrawal of Sabin type 2 strains from OPV.[23]

Evolutionary clusters of VDPVs have been found in sewage from populations with high (>95%) immunity, suggesting the need to incorporate environmental surveillance in the overall polio surveillance system, particularly in countries where OPV is still in use.[20]

While 15-20 doses per child of OPV remain the sole strategy for controlling polio in Pakistan, the US moved to an all-IPV strategy, more than two decades agobecause of the risk of paralytic polio with OPV (overall risk 1 in every 750,000 first doses)[24] raising the important issue of social justice and equity in health care for all.

Polio vaccine is not routinely recommended for persons 18 years of age or older in the US because the risk from wild virus is low. However, if vaccine is needed, such as for persons traveling to Pakistan, previously unvaccinated adults are given two doses of IPV at intervals of 4 to 8 weeks and a third dose 6 to 12 months after the second. Adults who have had a primary series of OPV or IPV and who are at increased risk for exposure to poliovirus may receive an additional dose of IPV. Previously vaccinated individuals receive a one-time single dose of IPV as a booster if the last dose or booster dose was administered at least 10 years previously.

In Pakistan an outbreak of cVDPV2 was recorded in 2012-2013 with 61 cases of Acute Flaccid Paralysis (AFP).[10] Wild type polio 1 virus (WPV1) has been found in environmental samples from different parts of Pakistan; 93 cases were recorded in 2013 and the count is rapidly increasing this year and may well cross the 100 mark.

The Augmented National Emergency Action Plan 2012 for polio control in Pakistan[25] proposed a pilot use of IPV as a supplement to OPV in the second half of 2012 to develop experience on its potential wider use. This plan failed to materialize. Action Plan for 2013[26] continues to emphasize the sole use of bivalent and trivalent OPVs as the prime strategy for control. Amidst concerns of VAPP and VDPV and incomplete vaccine coverage, can OPV as a sole strategy to protect a nation against polio virus be justified?

Low cost, immunogenic potential and the presumed benefit of inducing herd immunity by introducing attenuated live virus in the community have been the driving force for using this strategy in Pakistan and this may continue indefinitely. WHO no longer recommends an OPV-only vaccination schedule. For all countries currently using OPV only, atleast 1 dose of IPV should be added to the schedule.[27]

Use of OPV for travelers going out of Pakistan to non-endemic areas is enigmatic. It is well known that VDPVs can be imported and spread in under-vaccinated communities of developed countries.[28] The current recommendation does not take this fact into consideration.

In Pakistan, serological studies have shown favorable immunological response to combined IPV+OPV vaccination.[29] Combined or sequential IPV and OPV can decrease incidence of paralytic polio, both wild type and VAPP.

What does the slogan "I am not carrying polio" mean if a traveler who has never been vaccinated carries a fake vaccination certificate or gets a single dose of OPV, thus putting close unimmunized contacts at risk (albeit small) of VAPP or VDPV infection?

The important question is who do we want to protect and how? The best one can achieve with a single dose OPV is to boost immunity in a majority of individuals who are already immune. For the non-vaccinated group, one dose of OPV is not sufficiently immunogenic to be protective but perhaps that is not the intention of this exercise. OPV just prior to departure would ensure introduction of vaccine virus in environment where polio eradication has already been achieved. Non-immune OPV recipients continue to shed vaccine viruses in the feces (and pharynx) for 1 to 6 weeks.[1]

What are WHO recommendations for vaccinating travelers from endemic countries?
Before travelling abroad, persons residing in polio-infected countries should have completed a full course of polio

vaccination in compliance with the national schedule, *and* received one dose of IPV or OPV within 4 weeks to 12 months of travel, in order to boost intestinal mucosal immunity and reduce the risk of polio virus shedding. Many polio-free countries now require resident travelers from polio-infected countries to be vaccinated against polio in order to obtain an entry visa, or they may require that travelers receive an additional dose on arrival, or both.[27]

From both humanitarian and scientific view point any polio paralysis should be prevented, not merely that caused by wild viruses. Therefore, polio eradication must be perceived as truly the zero incidence of polio virus infection, both wild and vaccine-derived, in developed and developing countries.[30]

Pakistan is spreading WPV1 and cVDPV to Afghanistan and other countries.[10] Genomic sequencing and *preliminary* phylogenetic analyses suggest that WPV1 was imported from Sindh to Egypt (2012) and then to Israel, West Bank and the Gaza Strip.

With the current polio control strategies, the true impact of wild and attenuated polio strains within and outside the country remains to be seen. In the mean time, the hapless populace is expected to toe the line and wait patiently for the next directive.

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4th International Forum on Infectious Diseases (IFID) 2014

The 4th IFID in cooperation with MMIDSP was conducted by GETZ Pharma under an MOU as in previous years. It was held in Kuala Lumpur, Malaysia on 22th August 2014 with the theme "Respiratory Tract Infections: Emerging Scenarios in Developing Countries". In his opening remarks Dr. Ejaz A. Khan, President MMIDSP shared some exciting news, major achievements and some setbacks over last few years in the field of infectious diseases. Earlier Dr. Khawar Mehdi welcomed more than 100 delegates from 6 countries (Myanmar, Sri Lanka, Vietnam, Philippines, Kazakhstan and Pakistan). The 4 hour long scientific session focused on respiratory diseases and all sessions' were lead by eminent speakers. MMIDSP was actively represented by President, Dr Ejaz A. Khan, Dr. Altaf Ahmad and Professor Sajid Maqbool.

Speakers included Dr. Ejaz Khan (*"Antibiotic Stewardship Initiative in Pakistan (ASIP)– an urgent need!"*), Dr. Daniel Tan from Philippines (*"The Must Know in the Management of Lung Infection"*), Dr Altaf Ahmad (*"Comparable antimicrobial activity of Levofloxacin & Ciprofloxacin against Salmonella Typhi & Paratyphi in Karachi, Pakistan"*), Dr. Sajid Maqbool *("Rational use of antibiotics in RTIs in children"*) and Dr. Win Naing from Myanmar *("Community Acquired Pneumonia Management - Myanmar Perspective"*). A panel of experts moderated each session with active participation from the enthusiastic audience. This conference was a good forum to create awareness of ID related issues in Pakistan. It was very interactive with international speakers adding color. Important hot topics with emphasis on scientific value and new aspects were chosen. Participants with diverse specialty and areas from different countries were invited. Discussion after each talk was lively and educative.

Many participants had positive feedback about learning new aspects of diagnosis and management of respiratory infections. IDSP welcomes such endeavors and those who support such educational activities. Many suggestions were given to build on this platform. It is hoped that more educational activities from GETZ Pharma will continue for the promotion of ID in Pakistan in future as well.

Dr Ejaz A. Khan

Antibiotics Stewardship Summit-2014, 17th -19th October 2014, Lahore

"Antibiotics Stewardship Summit-2014 by Pfizer Pakistan in collaboration with Medical Microbiology and Infectious Diseases Society of Pakistan (MMIDSP). The objective of this meeting was to highlight the role of Infectious Diseases Physicians and Medical Microbiologists to reduce antibiotic misuse, anti-microbial resistance, healthcare costs and improving patient's outcome. It was held in Lahore with the theme *"ROLE OF ID PHYSICIAN AND MEDICAL MICROBIOLOGIST"*. In his welcome address Dr. Ejaz A. Khan, President MMIDSP praised the fantastic effort by Pfizer Pakistan to bring together on one-platform experts in infectious disease and microbiology to share, exchange and gain exciting news and current trends in epidemiology, diagnosis and management of microbiology and infectious diseases in Pakistan. He described the global crisis of antibiotic resistance being witnessed over for last few decades especially in recent years and common infections like typhoid, URTI or urinary tract infections with become untreatable with common antibiotics now.

A full day on Day 2 included speakers Dr. Asghar Naqvi *("Penicillin to Tigecycline – a long Journey"*), Dr. Mateen Izhar ("Emerging Multi-Drug Resistant Organisms: Knowing your enemy well"), Dr. Ejaz A. Khan ("Why wrong antibiotic prescriptions are dreadful?"), Dr. Mahmud Haider Javid *("Clinical implications of Drug-Resistant Infections"*), Dr. Naseem Salahuddin *("Antibiotics in sepsis")* and Dr. Sajid Maqbool ("The rational use of antibiotics in common infections"). A case based discussion on resistant surgical infections followed conducted by Dr. Wasim Hayat Khan and Dr. M. Waris Farooka highlighting the role of antibiotics particularly "Clinical outcome of tigecycline". Dr Altaf Ahmad then conducted a 2-hour interactive workshop "Antibiotic Stewardship Initiative in Pakistan (ASIP)". Different roles of ID physician (Dr. Ejaz Khan), microbiologists (Dr. Afia Zafar), "Correlations of clinical outcomes and susceptibility testing" (Dr. Javeria Farooqui) and pharmacy (Ms. Komal Fizza).

The plaque of "antibiotic misuse and overuse" within Pakistan was discussed at length and how all physicians including microbiologist and ID physicians need to assume responsibility of this daunting and challenging task. All speakers highlighted that though difficult and yet to be recognized we needed a committed and concerted effort in Pakistan. Different experts moderated each session with active participation from the enthusiastic audience. There were many positive things about this meeting with creating awareness of ASIP, roles of different stakeholders and diversity of participants from different cities that were invited. Discussion after each talk was lively and educative. Many participants had positive feedback about ASP and the role of MMIDSP for this purpose. MMIDSP also welcomes such endeavors and those who support such educational activities.

Instructions to Authors

Scope

The Infectious Diseases Society of Pakistan sponsors the Infectious Disease Journal of Pakistan (IDJ). The Journal accepts Original Articles, Review Articles, Brief Reports, Case Reports, Short Communications, Letter to the Editor and Notes and News in the fields of microbiology, infectious diseases, public health; with laboratory, clinical, or epidemiological aspects.

Criteria for publication

All articles are peer reviewed by the IDSP panel of reviewers. After that the article is submitted to the Editorial Board. Authors may submit names and contact information of 2 persons who potentially could serve as unbiased and expert reviewers for their manuscript, but IDSP reserves the right of final selection.

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Manuscripts must be formatted according to submission guidelines given below, which are in accordance with the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (originally published in N Engl J Med 1997;336:309-15). The complete document appears at www.icmje.org. Please submit one complete copy of the manuscript and all enclosures to **The Managing Editors, Infectious Diseases Journal of Pakistan, Department of Pediatrics & Child Health, The Aga Khan University, Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan.** An electronic copy of the manuscript must also be sent to pak_idj@yahoo.com**.** All manuscripts submitted to IDJP must be accompanied by an Authorship Declaration stating that *'The authors confirm that the manuscript, the title of which is given, is original and has not been submitted elsewhere.Each author acknowledges that he/she has contributed in a substantial way to the work described in the manuscript and its preparation'*. Upon submission a manuscript number will be assigned which should be used for all correspondence.

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Articles should report original work in the fields of microbiology, infectious disease or public health.The word limit for original articles is 2000.

Title page

This should list the (i) title of the article, (ii) the full names of each author with highest academic degree(s), institutional addresses and email addresses of all authors. (iii) The corresponding author should also be indicated with his/her name, address, telephone, fax number and e-mail address. (iv) A short running title of not more than 40 characters (count letters and spaces) placed at the foot end of the title page.(v) a conflict of interest statement should also be included in this section.

Abstract

Abstract should not exceed 250 words and must be structured in to separate sections headed *Background, Methods, Results and Conclusions*.

Please do not use abbreviations or cite references in the abstract. A short list of four to five key words should be provided to facilitate.

Background

The section must clearly state the background to the research and its aims. Controversies in the field should be mentioned. The key aspects of the literature should be reviewed focusing on why the study was necessary and what additional contribution will it make to the already existing knowledge in that field of study. The section should end with a very brief statement of the aims of the article.

Materials and Methods

Please provide details of subject selection (patients or experimental animals). Details must be sufficient to allow other workers to reproduce the results. The design of study and details of interventions used must be clearly described. Identify precisely all drugs and chemicals used, including generic name(s) and route(s) of administration All research carried out on humans must be in compliance with the *Helsinki Declaration*, and animal studies must follow internationally recognized guidelines. The authors are expected to include a statement to this effect in the Methods section of the manuscript. A description of the sample size calculation and statistical analysis used should be provided.

Results

Present results in logical sequences in the text, tables and illustrations. Articles can have a maximum of 5 illustrations (in a combination of figures and tables) per article. The results should be in past tense and repetition of results presented in the tables should be avoided. Exact *P*-values should be reported along with reporting of OR and RR with their Confidence Intervals where applicable.

Discussion

Emphasize the new and important aspects of the study and conclusions that follow from them. Do not repeat the details from the results section. Discuss the implications of the findings and the strengths and limitations of the study. Link the conclusions with the goals of the study but avoid unqualified statements and conclusion not completely supported by your data.

Acknowledgments

Acknowledge any sources of support, in the form of grants, equipment or technical assistance. The source of funding (if any) for the study should be stated in this section. Please see below for format of **References, Figures and Tables**.

II. Review Articles
Authoritative and state of the art review articles on topical issues are also published, with a word limit of 2000. It should consist of critical overview of existing literature along with reference to new developments in that field. These should be comprehensive and fully referenced. Articles should contain an Abstract; Main Text divided into sections, Conclusions and References.

III. Brief Reports
Short clinical and laboratory observations are included as Brief Reports. The text should contain no more than 1000 words, two illustrations or tables and up to 10 references.

IV. Case Reports
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These may relate to material published in the IDJP, topic of interest pertaining to infectious diseases, and/or unusual clinical observations. A letter should not be more than 300 words, one figure and 3-5 references.

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Announcements of conferences, symposia or meetings may be sent for publication at least 12 weeks in advance of the meeting date. Details of programs should not be included.

References
Number references consecutively in the order in which they are first mentioned in the text. Identify references in text, tables and legends by Arabic numerals (in superscript). References cited only in tables or in legends to figures should be numbered in accordance with a sequence established by the first identification of the particular table or illustration. Bibliography should be given in order. Authors, complete title, journal name (Abbr), year, vol, issue, page numbers. According to "Uniform Requirements of Manuscripts submitted to Biomedical Journals", as cited in N Engl J Med 1997; 336:309-15.

Tables and Figures
Data reported either in a table or in a figure should be illustrative of information reported in the text, but should not be redundant with the text. Each table must be presented on a separate sheet of paper and numbered in order of appearance in the text. Table should be numbered consecutively in Arabic numerals. Tables and Figures legends should be self-explanatory with adequate headings and footnotes.Results which can be described as short statements within the text should not be presented as figures or tables.

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Illustrations should be numbered, given suitable legends and marked lightly on the back with the author's name and the top edge indicated. Original drawings may be submitted although high quality glossy photographs are preferable. They should be kept separate from the text. If possible, figures should be submitted in electronic format as either a TIFF (tagged image file format) or JPEG format. Minimum resolution for scanned artwork is:

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Authorship criteria
Those who have contributed sufficiently to the conceptualization, design, collection and analysis of data and writing of the manuscript should be granted authorship. Ideally all authors should be from the same department except for studies that are multi center or multispecialty.

Instructions updated - April 2012.
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