SIGNIFICANCE OF THE INFECTIOUS DISEASES AMONG CHILDREN WITH CLINICAL AND EPIDEMIOLOGIC CHARACTERISTICS

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Abstract:
Objective: This research work carried out to find out the epidemiologic aspects of these diseases among children who got admission in Sir Ganga Ram hospital, Lahore. Despite the development in the field of medical care, infectious diseases are the most important reason of high rate of morbidity as well as mortality in whole world.
Methodology: The analysis of the epidemiologic features carried out with the help of SPSS V. 22. In this retrograde research work, the collection of the data carried out from the clinical record files of 892 patients suffering from infectious diseases who got admission in Sir Ganga Ram Hospital, Lahore from August to December of 2018.
Results: Total 2105 patients who got admission in Sir Ganga Ram Hospital, Lahore in the duration of this research work, were suffering from infectious diseases. Total forty two percent (892) patients. Most common occurring infections were pneumonia, gastroenteritis and infection of urinary tract with frequency of 11.0%, 57.60% and 7.10% correspondingly. The rate of mortality because of these infections was 0.30%.
Conclusion: There are suggestions to improve the condition of hygienic state of supplies of water and routine utilization of pneumococcal and vaccines of the hemophilic influenza. The findings of this research work confirms the significance of the infectious diseases among pediatrics in our regions particularly pneumonia & gastroenteritis.
Key Words: *Morbidity, pneumonia, Influenza, vaccine, epidemiologic, mortality, infections.*

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INTRODUCTION:

There is very little knowledge about the infectious diseases among pediatrics in our country Pakistan. This research work carried out for the determination of the epidemiological features of various infectious diseases among pediatrics with a range of age 0-12 years who got admission in the Pediatric Department of our institute in the duration of this research work. Regardless of the development in the health care field, infectious diseases are very common reasons of mortality and these complications are worsening the lives of millions of people in whole world [1]. These diseases were the cause of complication in fifty four million people in whole world up to 1998 and it consequences were severe in pediatrics of developing regions [2]. The children mortality is the priority of the public health in whole world [3]. According to one estimation, 10.50 million patients having less than five year of age died in 2002 because of the avoidable diseases [4]. Diarrhea & pneumonia are the complication which have association with the mortality of the children [5]. The infections of respiratory system are the leading reason of acute illnesses in whole world and it is the most important cause of high rate of mortality of children and infants [6]. There are very high amount of the patients of pneumonia in countries of South Asia [7]. Infectious diarrhea is also an important reason of high rate of morbidity as well as mortality [8].

Control of the disease of diarrhea among pediatrics would lead to the saving of cost in the field of health care [9]. The epidemiology of the infectious disease helps in the prevention and better description of the health of pediatrics. Epidemiology has the ability to contribute through more effectual approaches to save the lives of the children [10, 11].

METHODOLOGY:

This research work carried out retrospectively at Sir Ganga Ram Hospital, Lahore from August to December of 2018. There were eight hundred and ninety two patients in this research work, comprising all the pediatrics with range of age 0-12years who got admission because of the infectious diseases. We carried out the classification of various infectious diseases in accordance with the WHO classification standard for various diseases [11]. We reviewed the medical records of all the patients. We used a wellorganized questionnaire to gather the data about age of patient, gender, final diagnosis, outcomes, and prevalence of death and total stay of hospitalization.

According to the final diagnosis, the involved body systems were CNS (Central Nervous System), urogenital tract, infection in digestive tract, respiration tract, skin and miscellaneousgroup. Miscellaneousgroup comprisedperitonitis, brucellosis, peritonitis, septicemia and infections because of viruses. SPSS V.22 was in use for the statistical analysis of the collected information.

RESULTS:

In the duration of this research work and total 2105 pediatric patients got admission among them forty two percent (n: 892) patients were suffering from infectious diseases. Average age of the patients suffering from these diseases was 2.28 years with a range from 7 days to twelve years. Total 53.70% (n: 479) male patients were suffering from infectious diseases. The average duration of hospitalization was 2.47 days with an average of one to twenty three days. The rate of mortality because of infectious diseases was 0.30% (n: 3) patients because of whooping cough, pneumonia and shigellosis. The most common infectious diseases were gastroenteritis present in 57.60%, pneumonia present in 11.0% and infections of urinary tract in 7.10% patients correspondingly. The patient's characteristics suffering from these 3 diseases are available in Table-1. Total 14 neonates got admission with urinary tract infections, four patients because of pneumonia, one patients due to pyoderma, one patient due to cellulitis, one patient with viral infection of intestines and one patient was suffering from bacterial infection of intestines in the duration of this research work. There was lowest frequency of neonatal age group with age of 1st to twenty eight days from other age groups. We did not observe any difference in the male and female patients in the rate of occurrence of gastroenteritis(P=0.220).

Table-I: Characteristics of admitted patients with gastroenteritis, pneumonia and UTI*

Diagnosis Variable		Gastroenteritis		Pneumonia		UTI *	
		No	Percent	No	Percent	No	Percent
Age group	0 day - 28 days	0.0	0.00	4.0	4.00	5.0	8.00
	29 days < 1 year	193.0	37.50	65.0	66.30	34.0	54.00
	1 year < 4 years	235.0	45.70	24.0	24.50	15.0	23.80
	4 < 9 years	72.0	14.00	4.0	4.00	8.0	12.70
	greater than 9 years	14.0	2.70	1.0	1.00	1.0	1.50
Gender	Male	285.0	55.40	63.0	64.30	16.0	25.30
	Female	229.0	44.60	35.0	35.70	47.0	74.70
Admission duration (Day)		1.7	1.21	5.2	4.22	3.7	2.06
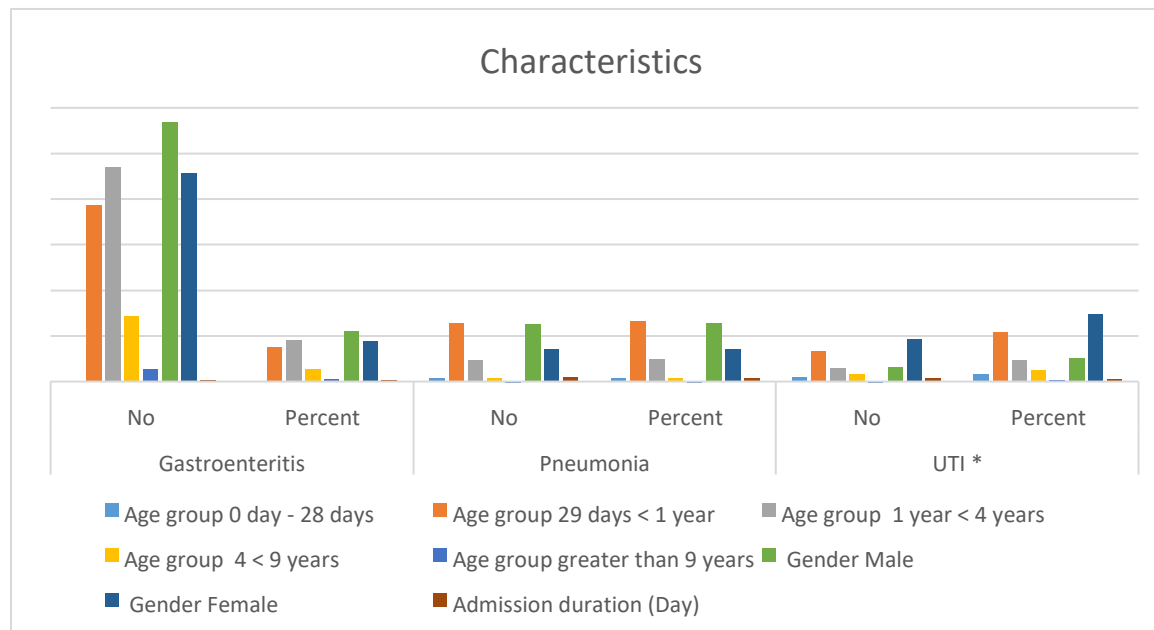
* UTI: urinary tract infection

We found a significant difference between female and male patients in the rate of occurrence of UTI and pneumonia (P<0.0010 and P=0.020,respectively). We also observed the significant difference in the rate of occurrence of gastroenteritis, pneumonia & UTI infection among various age groups(P=0.0010, P< 0.0010 and P=0.0020, respectively). Most frequent system of body involved were digestive tract in 71.30% patients, respiratory tract in 15.70%, urogenitaltract in 7.10%, miscellaneous in 3.40%, CNS in 1.70% and skin in 0.90% patients correspondingly. Most frequent infections of intestinal protozoan were Amoebiasis in 1.80% and Giardiasis in 0.40%, correspondingly.

DISCUSSION:
The high rate of occurrence of the infectious complications was mostly because of the lower social and economic status and crowdedness in this very region. The rate of infectious diseases was forty two percent in this research work whereas Najib stated this prevalence rate as 21.30% in his research work [12]. The infections of lower respiratory tract are very common in winter [13]. Acute gastroenteritis is serious health issue among children with less than 4 year of age in the countries which are underdevelopment because of water supply [14]. There is no decrease in the incidence of acute diarrhea in our country in last ten years [15]. In current research

work, the average duration of admission because of gastroenteritis was 2.68 days while in the research work of kurugol conducted in Turkey, he described it as 5.50 days [16]. Pneumonia is much frequent in the countries which are under development and it is also the cause of high rate of morbidity as well as mortality [17]. We discovered that most common group of age among pneumonia patients is less than 4 year of age (95.0%). Michelow stated the similar findings in this research work [18].

In current research work, there was more prevalence of pneumonia in male patients which is similar to the results of some other research studies [18,19]. There is very high risk of UTI in infants and neonates due to less developed immunity [20]. We discovered that most of the patients suffering from UTI were present in the twenty nine days to 1 year age group, that finding is similar to the results of Wu Cy who conducted his research work in Taiwan [21]. In current study, incidence of urinary tract infection was 7.10%. This prevalence rate was nine percent in febrile pediatrics in Lahore [22,23]. Shaw stated that overall incidence of the urinary tract infection among febrile pediatrics in the department of emergency was 3.30% [24].There is variation in the rate of prevalence of UTI by race, gender, age of patient and circumcision condition [25]. In current research work, the rate of occurrence of urinary tract infection was high in females as compared to males that are much similar to the other research works conducted in our country as well as neighboring countries [22, 23].

This finding is not similar with the results stated by Wu CY in his research work [21]. There is reduction in the risk of urinary tract infection because of circumcision [26] as this is a religious duty in our country. So, the complication of UTI is much less in males as compared to the females in our country. In current research work, the incidence of Amoebiasis was greater than Giardiasis that is not consistent with the reports of other research works [27,28].

CONCLUSION:
There is need of further research works to know about the etiology ofthese infection to restrict them with full effectivity. Additionally, there is need to improve the hygienic conditions of supplies of water to reduce the prevalence of gastroenteritis. The findings of this research work conclude the overall significance of the infectious diseases among pediatric patients in our region specially infections of urinary tract, pneumonia, and gastroenteritis.

REFERENCES:
1. Gouvea V, Dias G, Aguiar E, Pedro A, Fichman E, Chinem E, et al. Acute Gastroenteritis in a pediatric hospital in Rio de Janeiro in pre- and post- Rotavirus vaccination settings. The Open Virol J 2009;3:26-30.
2. Rudan I, Boschi- pinto C, Biloglav Z, Mulholland K, Campbell H. Epidemiology and etiology of childhood pneumonia. Bull World Health Organ 2008;86(5):408-416.
3. Nguyen T, Van P, Huy C, Gia K, Weintraub A. Etiology and epidemiology of diarrhea in children in Hanoi, Vietnam. Iinternational J Infect Dis 2006;10(4):298-308.
4. Barnes G, Uren E, Stevens K, Bishop R. Etiology of Acute Gastroenteritis in Hospitalized children in Melbourne, Australia, from April 1980 to March 1993. J Clin Microbial 1998;36(1):133-138.
5. Nelson K, Williams C, Graham N. Infectious Disease Epidemiology: Theory and practice. JAMA 2008;299(4):459.
6. WHO. International Statistical Classification of diseases, 10th Revision, Second Edition 2003.
7. Najib KH, FallahZadeh E, FallahZadeh M. Disease spectrum and mortality in hospitalized children of southern Iran. Iran J Pediatr 2007;17(3):359-363.
8. Kliegman R, Behrman RE, Jenson H, Stanton B. Nelson Text book of pepiatrics. 18th edition. USA: Saunders; 2007.1795.
9. World Health organization. Acute Respiratory infections. 2009. Available From:
10. http://www.who.int/
11. Black RE, Morris SS, Bruce J. Where and why are 10 million children dying every year?. Lancet 2003;361(9376):2226-34.
12. Panahi Y, Beiraghdar F, Moharamzad Y, Matinzadeh Z, Einollahi B. The incidence of urinary tract infections in febrile children during a two- year period in Tehran, Iran. Tropical Doctor 2008;38(4):247-249.
13. Wu CY, Chiu PC, Hsieh ks, Chiu Cl, Shih CH, Chiou YH. Childhood urinary tract infection: A clinical analysis of 597 cases. ActaPediatr Taiwan 2004;45(6):328-33
14. Ma J, Shortliffe L. Urinary tract infection in children: Etiology and epidemiology. Urologic Clinics of North America 2004;31(3):224-233.
15. Savadkoohi R, Ahmadpour- Kacho M, Yahyapour Y. Prevalence of viral gastroenteritis in children with acute gastroenteritis in Babol, Iran. J Pediatr Infect Dis 2007;2(4):211-214.

16. Mcinotosh K. Community-Acquired pneumonia in children. N Eng J Med 2002;346(6):429-437.
17. Michelow L, Olsen K, Lozano J, Rollins N, Duffy L, Ziegler T, et al. Epidemiology and clinical characteristics of community- acquired pneumonia in Hospitalized children. Pediatrics 2004;113(4):701-707.
18. Kurugol Z, Geylani S, Karaca Y, Umay F, Erensoy S, Vardar F, et al. Rotavirus gastroenteritis among children under five years of age in Izmir, Turkey. Turkish J Pediatr2003;45:290-294.
19. Kolahi A, Nabavi M, Sohrabi M. Epidemiology of acute diarrheal diseases among children under 5 years of age in Tehran, Iran. Iran J Clin Infect Dis 2008;3(4):193-198.
20. Stein CE, Inoue M, Fat DM. The global mortality of infectious and parasitic diseases in children. SeminPediatr Infect Dis 2004;15:125-9.
21. Orne-Gliemann J, Perez F, Lerov V, Newell ML, Dabis F. A decade of child health research in developing countries. Sante 2003;13(2):69-75.
22. Shaikh N, Morone NE, Bost JE, Farrell MH. Prevalence of Urinary tract Infection in childhood: A Meta-analysis. Pediatr Infect Dis J 2008;27(4):302-308.
23. Sabayan B, Motamedifar M, Zamiri N, Karamifar K, Chohedry A. Viral infections, prevalence and costs; A 5-year, hospital based, retrospective observational study in Shiraz, Iran. Pak J Med Sci 2007;23(4):580-584.
24. Fauci A, Braunwald E, Kasper D, Hauser S, Longo D, Jameson J. Harrison's principles of internal medicine. 17th edition. USA: MC GrawHill; 2008:749.
25. Sanchez-Vega J, Tay-Zavala J, Aguilarchiu A, Rviz-Sanchez D, Malagon F, Covarrubias J, et al. Cryptosporidiosis and other Intestinal Protozoan Infections in Children Less than one year of age in Mexico City. Am J Trop Med Hyg 2006;75(6):1095-1098.
26. Houle A. circumcision for all: The proside. Can UrolAssoc J 2007;1(4):398-400.
27. Huh J, Moon S, Lim Y. A survey of Intestinal protozoan Infections among gastroenteritis patients during a 3-year period (2004-2006) in Gyeonggi – do (Province), South Korea. Korean J Parasitol 2009;47(3):303-305.
28. Shaw K, Gorelick M, McGowan K, Yakscoe N, Schawartz J. Prevalence of Urinary Infection in Febrile Young Children in the emergency Department. Pediatrics 1998;102(2):e16.
29. Musa-Aisien AS, Ibadin OM, Ukoh G, Akpede GO. Prevalence and antimicrobial sensitivity pattern in urinary tract infection in febrile under-5 at a children's emergency unit in Nigeria. Ann Trop Paediatr 2003;23(1):39-45.