

Pediatrics morbidity and mortality at Basra General Hospital in Basra

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Abstract

The health burden and mortality caused by infectious diseases of children remain high worldwide. A retrospective study to the main causes of hospitalization and death (apart from malignant diseases) among children in Basra was done. Medical records for patients admitted to the pediatric department in Basra General Hospital throughout 2013 were collected and analyzed for demographics, diagnosis, and outcome.

The median age was 12 months. 83.2% of the admissions were due to three diseases: gastroenteritis (48.6%), respiratory diseases (19.6%) and urinary tract infection (15.0%). The annual incidence per 1000 and case fatality rates of these infections were as follows: gastroenteritis, 15 (0.24 percent); respiratory diseases, 6.5 (0.82 percent); and urinary tract infection, 4.6 (2.4 percent), respectively. The overall mortality rate was 1.3 percent, where 60.6 % of them are females and the complications of urinary tract infection were the most common cause.

Infectious diseases remain the primary cause of hospitalization among Basra children and frequently lead to death. A substantial proportion of this morbidity and mortality is probably attributable to preventable diseases. Prospective surveillance using microbiological data is needed to delineate the organism-specific burdens.

Keywords: pediatric morbidity in Basra, main causes of child hospitalization

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Introduction

Around 40 years after the Alma-Ata declaration was signed by many nations and international organizations, which defined primary care, particularly mother and child care, as the key tool for high quality and high equity healthcare services and proposed standards, some goals of that declaration have still not been achieved ^{1,2}

Since the first decade of the last century, the majority of people in the world have been living in urban regions³. Forecasts advocate that 70% of people will reside towns and cities by 2050 ⁴. Infectious diseases have long been considered as a penalty for living in high density area. In fact, urbanization tends to make use of enhanced infrastructure and easier organization, so as to compensate the epidemiological risks of large, crowded residents ⁴. The urban penalty comes in two shapes. The first is obviously linked to population size and density. The second is the expense of living in urban favelas, where poor housing, hygiene, and sanitation depict residents to a variety of air-, water- and soil-borne pathogens. ^{5,6}. Despite significant advances in the services for child health in the developed countries, more children are being admitted to hospital ⁷.

Since 1980, Iraq's healthcare system was unrivaled in the Middle East, but successive wars considerably changed the situation. Much international consideration originally attentive on the military and political consequences of the Gulf crisis, little attention, however, has concentrated on the resident population of Iraq as a whole and with special consideration on Basra. The war has widespread environmental and psychological impacts that last for long specially affecting children under the age of five years ⁸.

There are also many Social and economic changes which provoked a phenomenon known as epidemiologic transition which leads to dramatic changes in the prevalence of infectious diseases, the nutritional condition and decrease availability of primary health facilities. Those transformations, associated with changes in the demographic pattern, caused alterations in the morbidity and mortality rates of the population. So one of the consequences of the war is the intensification health burden and mortality caused by childhood diseases in Basra and apart from child

with malignant diseases, which regarded as main cause of death among children in Basra⁹, infectious diseases still have great health impact on these age groups.

Hospital admission has special importance as it comes to represent the portion of health system that consumes the greatest amount of resources. Moreover, the information about rates and causes of hospitalization consider as important indicators for the quality of the health services¹⁰. Studies using these indicators have enabled the improvement of actions and public policies capable of reducing this traumatic event for the child and family. The high frequency of hospitalizations due to diseases considered to be easily preventable, reflect both a lack of appropriate care delivery to certain groups of the population, as well as their poor life and health conditions.

Methodology

This descriptive study based on hospitalizations of children occurred throughout 2013 in Basra General Hospital. The data used are available in the statistical department and the document based on the medical report that filled at the time of hospitalization. The data were arranged using the official software of the Ministry of Health and are available according to month and year. After the selection of all hospitalization of children in the pediatric department, demographical characters were confirmed and hospitalization diagnosis were classified. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version (21) software.

Result

Two thousand four hundred seventy four patients under eighteen years of age hospitalized at the Pediatrics Department were enrolled. There were 1504 male and 967 female with a male: female ratio is 1.5: 1. The characteristics of patients are shown in Table 1. The median age of patients was 12 months. Among the patients 53.3 % were <13 months; 17.6 % were 13–24 months of age, 16.1 % were 25–60 months, and 13 % were > 60 months .

83.2% of the admissions were due to only three diseases: gastroenteritis (48.6%), respiratory diseases (19.6%) and urinary tract infection (15.0%). Figure (1) shows the main causes of hospitalization according to the age category. The annual incidence per 1000 and case fatality rates of these infections were as follows: gastroenteritis, 15 (0.24 percent); respiratory diseases, 6.5 (0.82 percent); and urinary tract infection, 4.6 (2.4 percent), respectively. The overall mortality rate in the pediatric ward during the study was 1.3 percent, where 60.6 % of them are females and the complications of urinary tract infection were the most common cause.

Table (2) Demographical character of children admitted to Basra General Hospital throughout 2013.

Cage	Numbers	Percentage	Age in Months	Numbers	Percentage	Diseases	Numbers	Percentage
infant	1312	53.3	<13	1312	53.3	enteritis	1203	49.0
preschool	730	29.7	13-24	434	17.6	heart disease	45	1.8
school	419	17.0	25-60	396	16.1	kidny diseases	370	15.1
Total	2461	100.0	> 60	319	13	epilepsy	134	5.5
missing	13		Total	2461	100	anemia	103	4.2
			missing	13				
Discharge	Numbers	Percentage	Gender	Numbers	Percentage	meningitis	32	1.3
good	1952	79.9	Male	1504	60.9	other diseases	84	3.4
on responcibility	427	17.5	Female	967	39.1	lung diseases	485	19.7
death	33	1.4	Total*	2471	100	Total	2456	100.0
transfer	32	1.3	missing	3		missing	18	
missing	30							

*The difference between the sample size (n=2474) and the total sample size mentioned in the table is due to missing data.

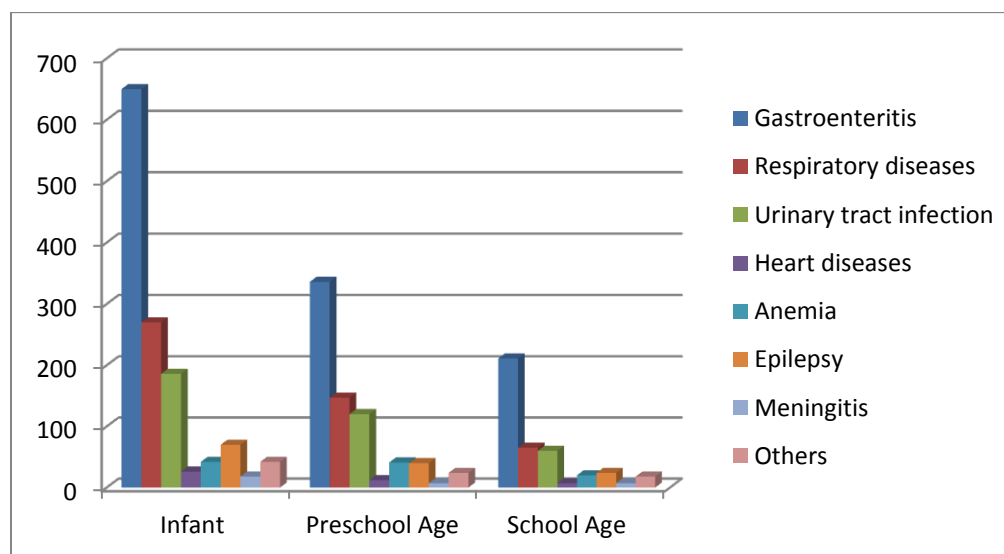


Fig (1) the main causes of hospitalization with respect to the age category

Discussion

Much of the difference in rates of child mortality and morbidity among communities are attributable to high rates of infectious illness. This undoubtedly reflects differences in factors such as sanitation, nutrition, housing, and other indicators of socioeconomic status, that adversely promote infectious diseases¹¹. Children have habits that enable the propagation of diseases, they also reveal factors specific to their age such as an immature immune system, influencing towards infectious diseases^{12, 13}. The main causes of hospitalization of children in Basra throughout 2013 were Gastroenteritis, Respiratory diseases and urinary tract infection.

In the present study the rates of infectious diseases, especially gastroenteritis diseases, are higher in infant than preschool and school age groups which is same finding to other studies that blamed socioeconomic states as a main cause¹⁴⁻²⁴.

Gastroenteritis diseases were the first most frequent reason for hospitalization among children in Basra, accounting for 1203 (48.6%) of patients admitted and the annual incidence per 1000 and case fatality rates of gastroenteritis are 15 (0.24 percent). Gastroenteritis diseases still continue worldwide as a remarkable population health problem in spite of advancements achieved in preventing its primary complication, dehydration, by oral rehydration solutions which is in use since the 1980s. Gastroenteritis diseases still are the main cause of death among children from one to four years old in numerous countries. It implies a considerable load of morbidity and mortality and consequently a considerable request for the health services due to the pathogenic path that results from a set of many economic, social, cultural and biological aspects, which can occur and progress differently in several areas and populations. In United State, gastroenteritis represents the second most common overall reason for pediatric hospitalization, in 2012²⁵. Hospitals in Irbil, Kirkuk, and Sulaymaniyah and the Central Teaching Hospital in Baghdad shown rates of gastroenteritis among pediatric inpatients of 91, 78, 84, and 38 % respectively in 1991²⁶.

Respiratory tract infections are the first reason of childhood morbidity and mortality worldwide, responsible for about 30% of all childhood deaths in the developing world. The WHO approximations that respiratory diseases interpretation for 1.9 to 2.2 million childhood deaths annually, with 42% taking place in Africa^{27, 28}. In the present study, Respiratory diseases is the second reason of hospitalization which represent 19.6% of admitted patient's, while the annual incidence per 1000 and case fatality rate of it was 6.5 (0.82%).

The proportion of mild to severe Respiratory illness varies between high- and low-income nations, and because of differences in precise etiologies and risk factors, the severity of respiratory diseases in children under five is worse in developing countries, consequential in a higher case-fatality rate. Although medical precaution can to some extent alleviate both severity and fatality, many severe respiratory diseases do not respond to treatment, largely because of the lack of extremely effective drugs²⁹. In Brazil the main causes of hospitalization in children from zero to nine years old were due to diseases of the respiratory system, which corresponds to 38% of the admissions³⁰. In China, the incidence of respiratory diseases ranged from 0.06-0.27 episodes per person-year and mortality ranged from 184 to 1223 deaths per 100,000 populations³¹. At the Rabat Children's Hospital, Morocco, out of 3537 hospitalized patients, 2493 (70.5%) had respiratory disease,³². Specific factors, such as immunological immaturity and the anatomical features of the respiratory system, along with life habits that predispose to exposure to infectious and irritating causes affecting the respiratory tract, clarify the vulnerability of the pediatric age group to respiratory diseases. In fact, an increase in the prevalence of respiratory diseases may attribute to worsening air quality and climate conditions. The hospitalization rate for respiratory diseases was high in São Paulo and the total pollutants in the air are nearly twice as much as in other big cities, such as Belo Horizonte, Curitiba, Porto Alegre and Recife³⁰. Consequently, the climate conditions and the increase of the prevalence of respiratory diseases provide clarifications for the increase in hospitalization observed in this city.

Kidney and urinary tract infections are common in childhood. The main factors that contribute to their occurrence are the anatomy of the genitalia and hygiene habits. In addition to that water pollution is a major global public health threat requiring greatly increased efforts in the areas of research and policy-making. Research on its health effects should be strengthened, particularly in relation to urinary tract infection. A more systematic approach to the development and evaluation of interventions is desirable, with clearer recognition of the interrelationships between poverty and dependence on polluting water. In developing countries, the national epidemiologic data on kidney disease in the pediatric population is currently limited³³. Albuminuria is an early sign of possible damage to the kidney and is been used since the decade of the 1960s³⁴. In Australia, a study reported the prevalence of albuminuria of 7.3% in Aboriginal and non-Aboriginal children. The socioeconomic level and geographical situation were discarded as risk factors, after a two-year follow up³⁵. From 2009–2011, in El Salvador, a study was carried on in 2115 children aged from 2–17 years, inhabitants in agricultural communities. The work reported prevalence of albuminuria up to 3.8 for both gender³⁶. In our study 15% of admission patients are due to genitourinary diseases.

The world made considerable progress in dropping child mortality in the past few decades. Internationally, the under-five mortality rate dropped from 33 deaths per 1,000 live births in 1990 to 20 in 2013³⁷. The overall mortality rate in the pediatric ward during this study was 1.3 percent which compares with The overall 8.2% reported in the USA in 2012, and 9.6% in Tanzania in 1987³⁸. Measures to reduce deaths that can be avoided through interventions directed to children younger than five years of age include: immune prevention actions, appropriate care provided to women during pregnancy and childbirth and to newborns, appropriate diagnosis and treatment and health promotion. Therefore, it is expected that the occurrence of hospitalizations due to avoidable causes will be controlled and in decline in cities with planned health care systems where outpatient care is appropriate and accessible to the population³⁹.

The limitations of this study are related to the reliability of the information obtained and the system is filled in a decentralized way. However, in several localities the secondary data sources have been used to study hospitalization in large population including children.

Conclusion

Infectious diseases remain the primary cause of hospitalization among Basra children and frequently lead to death. A substantial proportion of this morbidity and mortality is probably attributable to preventable diseases. Although respiratory diseases are the main cause of hospitalization worldwide, it was the second reason of hospitalization, after gastroenteritis diseases, in Basra. Prospective surveillance using microbiological data is needed to delineate the organism-specific burdens. Targeted interventional programmers aimed at these three diseases, coupled with a comprehensive primary health care system, would most likely result in much less morbidity and mortality for the children in Basra.

Prevention has been the greatest success in the field of infectious diseases. Control of infectious diseases is being challenged by many factors, like standards of living, human behavior, mass population movements, the emergence of infectious agents, the re-emergence of infections such as tuberculosis, development of resistance in bacteria, viruses and parasites, the modern rate of global travel, etc. Although great advances have been made, a considerable burden of morbidity and mortality from infectious diseases remains globally.

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