CHILDREN MORTALITY FROM COMMUNICABLE DISEASES IN CHILD TEACHING HOSPITAL

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Abstract

Hospital based data on mortality rate from communicable diseases is a reflection of what is obtainable in a community at large. Therefore; data obtained from such review is usually beneficial in re-evaluating existing services and in improving facilities and patients care. The aim of this study was to evaluate the mortality pattern of children admitted into the Children Teaching Hospital from February 2004 to December 2006. There were 3,267 admissions during the study period. The medical charts of all patients aged one month to 16 years were recorded, neonatal and surgical cases were excluded. One hundred and seventy one deaths occurred in the children giving mortality rate of 5.2%. Fifty two patients (88%) were under 5 years. Most of the deaths occurred between January and March. The commonest causes of death were pneumonia, bacterial meningitis; while 12% of patients were above 5 years of age, the visceral leishmaniasis and pneumonia were the predominant causes. Health intervention programs such as integrated management of childhood illnesses and primary health care, which have been shown to reduce childhood deaths significantly, need to be intensified in order to achieve the MDG4 by 2015.

معدل وفيات الأطفال الناتجة من الأمراض الأنتقالية في مستشفى الطفل التعليمي

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الخلاصه

ان البيانات المستحصلة من المستشفى والتي تسجل معدل الوفيات الناتجة عن الأمراض الأنتقالية تعكس ما يحدث في المجتمع بشكل واسع. وعادة ما تكون هذه المعلومات مهمة في أعادة تقييم الخدمات الصحية الحالية وتهدف الى تحسين الوسائل والعناية بصحة المرضى. الهدف من الدراسة هو تقييم نمط معدل الوفيات في الأطفال الراقدين في مستشفى الطفل التعليمي للمدة من شباط 2004 ولغاية كانون الأول 2006. تم دخول 3.267 طفل خلال مدة الدراسة تراوحت اعمارهم من عمر شهر واحد ولغاية 16 سنة. تم استثناء الوفيات الولادية والعمليات الجراحية. مائة وواحدة وسبعون وفاة حدثت في الأطفال واعطت معدل وفيات 5،2%. لوحظ أغلب الوفيات حدثت بين كانون الثاني واذار. اثنان وخمسون مريض مثلوا نسبة (88%) كانوا تحت عمر 5 سنوات. مرض ذات الرئة والتهاب السحايا الجرثومي كانوا من اسباب الوفيات شيوعا ضمن هذه الفئة العمرية بينما (12%) من المرضى كانت اعمارهم فوق الخمس سنوات حيث كان مرض الحمى السوداء وذات الرئة من اسباب الوفيات السائدة ضمن هذه الفئة العمرية. ان برامج الرعاية الصحية والأدارة المتكاملة لأمراض الطفولة ومراكز الرعاية الأولية للأطفال لها أهمية كبيرة في التقليل من معدلات وفيات الأطفال كما نحتاج لتكثيف الجهود من اجل تحقيق الهدف الرابع من اهداف الألفية التي وضعتها منظمة الصحة العالمية والتي تهدف بتقليل وفيات الأطفال بحلول عام 2010.

Introduction

Child mortality is a sensitive indicator of a country's development and telling evidence of its priorities and values [1]. Every day, more than 26,000 children under the age of five die around the world, mostly from preventable causes [2]. Some children succumbed to respiratory or diarrheal infections that are no longer threats in industrialized countries or to early childhood diseases that are easily prevented through vaccines, such as measles [3]. In 2006 for the first time since mortality data has been gathered, annual deaths among children under five dipped below 10 million to 9.6 million. This represents a 60 per cent drop of the child mortality since 1960. Nevertheless; millions of children continue to die each year from preventable causes such as pneumonia, diarrhea, malaria and measles [4]. Sub-Saharan Africa has one fifth of the world's children under five deaths, but accounts for one half of all child death in the developing world. In Eastern Asia and Latin America and the Caribbean, child mortality rates are approximately four times higher than in developed regions. Thirty-seven per cent of under five deaths occur in the first month of life [5]. The deteriorating infectious disease situation in Iraq as outlined in the news item by Dyer should be of international concern [6]. Not only are there ethical arguments for assisting the Iraqi people but some "global public good" arguments relating to communicable disease control may apply [7].

Impressive progress has been made in improving the survival rates and health of children, even in some of the poorest countries, since 1990 [8]. This study is therefore; aimed at evaluating the mortality pattern in children in the Child Teaching Hospital. The teaching hospital is located almost in the center of Baghdad and serves as specialist hospital for children. The information obtained from this study would be used in re-evaluating existing services and in improving facilities and patients care.

Material and Methods

This was a retrospective cross sectional study over a three years period from February 1, 2004 to December 31, 2006. The case files of all children aged one month to 16 years admitted into the pediatric ward were recorded. Neonatal and surgical cases were excluded from the study. Data extracted from the patient chart included: age, gender, principal diagnosis, cause of death. The principal diagnosis was based on the final assessment by the managing unit. It was based on presenting clinical features, with or without the results of laboratory tests. For instance, patients with pneumonia were diagnosed based on either clinically or by chest radiographs or both. Diagnosis of meningitis was based on the clinical features, with or without positive culture or abnormal biochemical analysis. The cause of death as document after weekly mortality reviews was considered as the final cause of death.

Data collected was entered into a spread sheet using SPSS 15.0 for windows® statistical software which was also used for analysis. Descriptive statistics was used to analyze the obtained data.

Results

There were a total of 3,267 admissions into the pediatric wards during the study period. One hundred and seventy one deaths were recorded. These were made up of 95 males and 76 females. The children were divided into 3 age groups: 88 patients were less than one year represents 51% followed by 37% of patients were aged 1-4 years and 12% were 5-16 years as shown in table (1).

Table 1: Age and sex distribution in 171 mortalities.

Age interval	Number of deaths		Total (%)
	Male	Female	
< 1 year	54	34	88(51%)
1-4 years	27	36	63(37%)
5-16 years	14	6	20(12%)
Total	95	76	171(100%)

The cumulative monthly mortality shows that there were more deaths between January and March which represent 40%. The major cause of deaths was pneumonia as shown in table (2).

Table 2: Cumulative quarterly mortality

Months	No. of deaths	Percentage %
January-March	68*	40
April-June	36	21
July-September	34	20
October-December	33	19
Total	171	100

*Common causes of death from January-March: Pneumonia (n=50), visceral leishmaniasis (n=9), bacterial meningitis (n=8), viral hepatitis (n=1).

One hundred and fifty one (88%) patients were under the age of five years with peak age less than one year. The main causes of death among children who are under five years were shown in table (3). Pneumonia was the commonest cause of death in 79 patients represents (52%) followed by bacterial meningitis in 41 patients represents (27%).

Table 3: Cause of death in children aged less than five years old.

Diseases	No. of patients	Percentage %
Pneumonia	79	52
Bacterial meningitis	41	27
Visceral leishmaniasis	19	12.5
Viral meningitis	4	3
Viral hepatitis	4	3
Acute flaccid paralysis	3	2
Pertussis	1	0.5
Total	151	100

The main causes of death in those above 5 years were shown in table (4). Visceral leishmaniasis was the commonest cause of death in 13 patient representing (65%) followed by pneumonia in 7 patients representing (35%).

Table 4: Cause of deaths in children aged more than five years old.

Diseases	No. of patients	Percentage %
Visceral leishmaniasis	13	65
Pneumonia	7	35
Total	20	100

Discussion

Despite the continued struggle to combat the communicable diseases they still constitute one the major health problems [9] .In developed countries it has found that 50.6% of deaths are caused by non communicable diseases and only 3.7% of death are caused by communicable diseases [10]. The highest mortality rates worldwide are still in sub Saharan Africa ,where approximately 15% of newborn children are expected to die before reaching their fifth birthday [11] .In this study the overall mortality rate was 5.2% ,this rate can be minimized in order to achieve the Millennium Development Goals MDG4 (Reduce child mortality) by 2015 [12] by intensified the efforts towards basic health care , the immunization programs and provide care for infections such as pneumonia , newborn infections and bacterial meningitis.

This study has shown that there 95 males and 67 females .There was male preponderance and the majority of children death occurred in age group less than one year which reveals the vulnerability of this age to communicable disease (Table1). Our findings are in agreement with a study by George et. al., (2009), in which in his study reveals that most causes of death occurred in children aged (2 months -2 years) with male preponderance in Nigerian children [13].

In this study most of the deaths occurred between the months of January and March (Table 2). This period coincides with the wet or raining season (winter) in Iraq. The seasonal variation in mortality had been described allover the world [14]. Increased mortality during the wet season may be explained by our finding that the major causes of deaths such as pneumonia occur more frequently during the wet season. This is because the wet season provides chilling environment for micro-organisms to cause pneumonia .Our findings are in agreement with Nigerian studies (Goerge, et al, 2008 and Oujkawa,et al 2004) [13,15],which they also revealed that the pneumonia was the major cause of deaths during winter season.

This study has shown that 88% of death that occurred in children under the age of five and the major four causes of mortality were pneumonia bacterial meningitis, visceral leishmaniasis, and viral meningitis (Table 3). Our findings are in agreement with World Health Organization (WHO) annual report of communicable diseasa in Iraq in (2006) [16]. Meanwhile; this study results shows disagreement with a study by Bryce et al, (2005) [3] which , revealed that death in children younger than age 5 years attributable to pneumonia , diarrhea, malaria, measles and mostly the children deaths occurred in the first 28 days of life.

Meanwhile 12% of death occurred in children aged more than five years old. The causes of deaths were visceral leishmaniasis and pneumonia as shown in table 4. These results were in disagreement with WHO annual report of communicable disease in Iraq (2006) [16], which reveal that the mental health situation of

the Iraqi population is particular concern, as is drug abuse. Recent studies initiated by (WHO) in (2006) shows that 14% of children in primary schools suffered from different non communicable diseases, the majority of whom are not receiving care. With the increasing violence against civilians, reported casualties and injuries have dramatically increased in 2006 [16]. The current epidemiological situation remains fragile and is to be under particular assessment in the context of the changing environment namely. The increasingly poor security sitution which impedes access to facilities power and water supply and disrupts the sewage system, whilst augmenting possibilitiies for drug abuse.

Conclusions

In 2006, Iraq increasingly faced a critical situation of internal turmoil, which confroted the first results reconstruction gained since 2003. During this year, Iraq health sector experienced considerable challenges, ranging from ensuring overall coordination of the health system, change of government, destructions of rehabilitated health care facilities. The crisis directly affected the health security of the poorest, access to health services and the provision of essential medical supplies. We concluded that mortality rate from communicable disease in Child Teaching Hospital which is pediatric hospital still high and these diseases isn't inevitable, nor need children with these diseases to die . Researches and experience show that six million of the almost 11 million children who die each year could be saved by low-tech, evidence-based, cost-effective measures such as vaccines, antibiotics, micronutrient supplementation, insecticide-treated bed nets and improved family care and breastfeeding practices. A follow up study is required in Child Teaching Hospital and other Iraqi pediatric hospitals to know how much close are we to achieve the MDG4 by 2015 [12].

References

1. Park, K. **2002**. *Indicators of health*. *In Park K, ED Parḱ s Textbook of Preventive and Social Medicine*. 17th ed. Jabalpur, India: MS Banarsidas Bhanot Publishers.21-24.
2. Black R E.; Morris S. S. and Bryce J. **2003.** Where and why are 10 million children dying each year The *Lancet*. **361**:2226-2234.
3. Bryce, J.; Boschi-Pinto, C.; Shi Shibuya, K. and Black, RE. **2005**. WHO estimates of the causes of death in children. *Lancet*; **365**:1147-1152.
4. Achieving the MDGs. **2008**. Background note by the secretary – general for the High –level Event on the Millennium Development Goals, United Nations, New York ,25 September 2008
5. The Millennium Development Goals Report. **2008**. United Nations; the State of World s Children 2008.
6. Dyer, O. **2004**. Infectious diseases increase in Iraq as public health service deteriorates .*Brit. Med. J.*; **329**:940. (23 October).
7. Smith, R.; Woodward, D.; Acharya, A. *et al* **2004**. Communicable disease control: a "Global Public Good" perspective .*Health Policy Plan*; **19**:271-8 [Pub Med].
8. Murry, C. J.; Frenk, J. and Evans, T. **2007**. The global campaign for the health MDGs: challenges opportunities, and the imperative of shared learning. *Lancet*; **370**:1018 -1020.
9. Cheng, J. **1990.** Communicable disease control, Maxcy Rosenau Public Health and Prevention Medicine 13th ed., Edited by John M. Last Appleton –Country Crafts New York: 89-90.
10. Donald, A. **2000**: New drug development for diseases of developing world International. *J. of Infectious Diseases*; **4**(3):112-117.
11. Ahmed, OB.; Lopez, AD and Inoue, M. **2000**. The decline in child mortality: a reappraisal. Bulletin of the World Health *Organization;* **78**:1175-91.
12. World Health Organization – Millennium Development Goals (MDG4): Reduce child mortality between **1990** and **2015**, the under –five mortality rate.
13. George, IO; Alex-Hart and Frank –Briggs AI **2009**. Mortality pattern in children: A hospital based study in Nigeria. *Inter. J. OF Bio. Sci.*; **5**(4):369-372 (15 December)
14. McKee, M.; Sanderson, C.; henet, L.; Vassin, S.; Shkolnikov, V. **1998**. Seasonal variation in mortality in Moscow. *J. of Pub. Heal. Med.*; **20**(3):268-274
15. Ojukwn, JU; Ogbu, CN and Nnebe-Agmadu, UH. **2004.** Post-neonatal medical admissions into the paediatric wards of Ebonyi State University Teaching Hospital, Abakaliki: The initial experience and outcome .*Nig J. pediatric*; **31**:79-86.
16. World Health Organization Annual Report **2006**. Prevention and Control of Disease, 2006 page 24.