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The Mortality Rate in Paediatric ICU at Benghazi children hospital

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Abstract: To determine the incidence of death in PICU and causes of deaths. The study carried out at AFCH in 12 months duration from1/4/2006 -31/3/2007. We looked to the files once the patients die and try to diagnose the causes of deaths. Age, gender and their residency where also determined. Total admission to medical units were 8782 and PICU admissions were 1322 which calculates 15% of total medical admissions Total number of deaths in PICU were 95 patients which has the incidence of 7.2% .49 (52%) of patients were infants. Male to female ratio was 1.6 : 1 .Causes of deaths *Cardiac causes and infection 23 (24%) of patents * Cental nervous system and infection 16 (17%) of patients *Oncology and Haematology 15 (16%) patients. *GIT and malnutrition 10 (10.5%) of patients. * Respiratory causes 9 (9.5%) of patients. * Sepsis, Metabolic, Renal and Other causes contributes 22 (23%) of patients.22 (23%) of cases died in the first 24 hours of their admission. The congenital heart disease, centeral nervous system and malignancies are the leadin cause of deaths. So the prevention and treatment of infection in addition of early surgical intervention in cardiac cases can safe a lot of babies. Primary health care and establishement of IMCI will help to decrease the incidence of deaths in children under five of age.

Keywords: AFCH-(Al-Fateh Chidren Hospital, CVS – Cardiovasculr system, CHD – Congenital Heart Disease, CNS – Central nervous system, GIT – Gastrointestinal tract, PICU – Paediatric intensive care unit, IMCI – Integrated, Management of Childhood Illness

INTRODUCTION

The Statistical data by WHO shown that around 11 million die every year under five years of age because of diseases, 70 % of them can be prevented and treated. The childhood mortality is a good indicator of the health of children in the population. In the developing countries infections is the leading cause of death in addition to congenital anomalies and malignancies.

The Paediatric intensive care unit, it is a special unit, trained staffs (nurses and doctors in Addison to Intensives), it should be well equipped (Ventilators, monitors, DCshock, blood gases machine, infusion pumps, resuscitations Sets act…..). In libya still running short of equipments and experience nursing staffs. But in recent years the PICU better than before especially in big cities, this is why the small cities and villages refer the serious babies to the major centers either to Tripoli or Benghazi. Our impression that the high mortality rates due to referring cases UN planned and in very critical state.

METHODS AND PATIENTS

AFCH in Benghazi is the major reffering hospital the Eatern part of Libya , it is a teaching center , it has the capacity of 250 beds involve the medical units , neonate , isolation , oncology , surgical and intensive care units (medical neonate and surgical) .The medical unit contains 5 incubators and 8 to 10 beds all have monitors and infusion pumps are attached to them. The unit has 4 ventilators , 6 suction machine and acess to porable X-ray , Ultrasoun and gass machine were available. The laboratory now is well equipped by new machines , reagents,and has the facilities even to send samples abroad if it are nt available.

The study carried out to all patients who died in medical PICU from 1/4/2006 – 31/3/2007 in 12 months duration. Each file was studied just after death or in the next day to find out the cause of the death, age gender and residency.

RESULT

Total admission to medical units were 8782 and PICU admissions were 1322 which calculates 15% of total medical admissions Total number of deaths in PICU were 95 patients which has the incidence of 7.2% . Age of our patients 1 month - 16 years old .49 (52%) of patients were infants and 17 % > 5 years of age.

Table-1: Age and gender distribution

AGE	N0	%	M : F Ratio
1 Mon.- < 1 Y	49	52 %	1.2 : 2
1 Y - < 5 Y	30	31 %	1.5 : 2
> 5 Years	16	17 %	2.2 : 2
Total	95	100 %	1.6 : 1

Table-2: Causes of Deaths

SYSTEMS INVOVED	N0	%
CVS	23	24 %
CNS	16	17 %
Hematology and Oncology	15	16 %
GIT and Nutritional problems	10	10.5 %
Respiratory	9	9.5 %
Sepsis	8	8.4 %
Metabolic	6	6.4 %
Renal	4	4.2 %
Others	4	4.2 %

Table-3: More details in causes of deaths

Systems	Patients involved
Cardiovascular systems	7 cases CHD with normal looking child
	9cases CHD with Downs syndrome
	4 cases CHD with Dysmorphic abnormal child
	2 cases with Cardiomyopathy
	1 case with Myocarditis
Central nervous systems and Neuromuscular disorder	7 cases with Cerebral palsy
	5 cases with Hydrocephalus with shunts problems
	2 cases with Degenerative brain diseases
	1 case ? coma Undiagnosed
	1 case Neuromuscular disorder
Hematology and Oncology	7 cases Leukemia (5-ALL , 1- AML ,1-CML)
	2 cases Lymphoma
	1 case Ewing's tumor
	1 case Burkett's lymphoma
	1 case Rhabdomyosatcoma
	1 case Medulloblastoma
	1 case A plastic anemia
Gasrointestinal ,Hepatology and Nutrition	6 cases FTT + Marasnic +/- Diarrhea
	1 case GIT bleeding
	1 case Esophageal Artesia + Marasmic+ Sepsis
	1 case Prolonged NN jaundice (Hepatic failure)
	1 case Hepatic failure
Respiratory diseases	7 cases Pneumonia and chest infections
	1 case Kerossin poison
	1 case Kartagener synd. (immotile cilia)
Sepsis and Sepsis- like conditions	8 cases Diagnosis mainly clinical
Metabolic	1 case MSUD , 1 case PKU
	1 Glycogen storage disease
	1 case Osteopetrosis
	2 cases Undiagnosed
Renal	2 cases Congenital nephritic syndrome
	1 case Chronic renal failure
	1 case Acute renal failure
Others	1 case Epidermolysis bullosa + sepsis
	1 case Progeria
	1 case Received at ICU
	1 case Died immediately after admission

Male to female ratio was 1.6: 1. Age and gender shown clearly in Table 1.Causes of deaths *Cardiac causes and infection 23 (24%) of patents * Cental nervous system and infection 16 (17%) of patients *Oncology and Hematology 15 (16%) patients. *GIT and malnutrition 10 (10.5%) of patients.* Respiratory causes 9 (9.5%) of patients. *Sepsis, Metabolic, Renal and Other causes contributes 22 (23%) of patients Table 2 and 3 . 35 (37 %) of deaths were from outside city of Benghazi.22 (23%) of all cases died in the first 24 hours of their admission.

DISCUSSION

The study carried out at AFCH IN Medical PICU, the mortality rate is 7.2 % which is lower than the previous unpublished data 10 .5 % in 2004 – 2005. Our study in this paper was shown less incidence in PICU 11 % and 16.3 which were carried out in Alkadra National Hospital and Tripoli Center Hospital respectively [1, 2]. In Zembabwe was high 33,6 % reported by Tropley et al and in Singhal *et al*. was 18 % [3].Fargors e tal the mortality rate in PICU was 6.5 % [4].

The CVS, CNS and Cancer with infections were the leading causes of deaths. The mortality rate (24 %) due to CVS (CHD) was lower than the study carried out by Bulazi *et al.* [1] in Tripoli Center which was 38 % .We feel that downs syndrome and Dysmorphic children are more vulnerable to CHD and when get infection the condition become worse The renal is far more lower 4.2 in our study if compared by 20 % in Tripoli Center study. Six were done because of vicious circle between diarrhea and malnutrition. Facilities of Paraenteral nutrition in our hospital is not established yet, prevention is better than treatment .Establishment of Primary health care and IMCI will help to detect vulnerable babies and treat them early. Children at risk should be picked up early and treat them properly in IMCI. In Sheffield since the introduction of extra care for high risk infants, preventable deaths have fallen from 5.2 to 1.9/1000 [5]. 8 cases where had sepsis and sepsis like conditions diagnosed mainly on clinical data , those patients need further evaluation and even necropsy .Because of limited laboratory facilities make the isolation of organism difficult .Study was done by Martine Maat *et al.* [6] demonstrated that the causative organisms were isolated in 84.3 % of cases N. meningitidis was the organism in 97.5 % .

Maternal deprivation and child mortality is well known association [7, 8], the socioeconomic conditions under which these children fail to thrive and at increased risk of dying is well documented [9].The lower child mortality rate in Scandinavian countries in early 80s compared with Britain reflect their lower death rates from causes such as Acute infecting, Cot death and treatable diseases while death rate from causes such as CHD are similar throughout Northern Europe [10].

CONCLUSIONS

The congenital heart disease, central nervous system and malignancies are the leading cause of deaths. So the prevention and treatment of infection in addition of early surgical intervention in cardiac cases can save a lot of babies. Primary health care and establishment of IMCI will help to decrease the incidence of deaths in children under five of age. The improvements in childhood mortality need optimal health services, starting from primary health care. Improvement of general standard of living, the reduction in preventable death may be the result of better care remains aptiorty if some children are to be prevented of dying needlessly. More local survey is needed to identify and monitor those at risk. Planning and way of transference from the periphery are very important to save critically ill child.Well equipt ICU and good training medical staff is also important.

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