

## **Mortality of Children Below 2 years In Mukalla Maternity and Child Hospital(MCH) in year 2001 & 2002.**

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### **Abstracts:**

**Objectives:** To determine the incidence of mortality in children below 2 years of age in Mukalla MCH and discuss the common etiologies. **Study design:** A retrospective descriptive study conducted in Mukalla MCH on Nov.21/2002 and data were collected using the files of patients admitted to MCH in the years 2001 and 2002. **Results:** the incidence of death in year 2001 was 14% while in year 2002 was 11.6% among children admitted to MCH, the most common cause of death in year 2001 was gastroenteritis (28%) while in year 2002 was prematurity (21.7%). Neonates constitute 49.7% and 56.5% of deaths in 2001 and 2002 respectively. **Discussion:** Death rate is high in Mukalla MCH in comparison to other countries due to poor socioeconomic conditions and high incidence of infectious diseases as well as inadequate medical services. **Conclusion:** Gastroenteritis and prematurity are the most common causes of death in children below 2 years of age in Mukalla MCH in years 2001 and 2002. the neonates represent about one half of all dead children.

**Key Words:** children, \*Mortality \*, Mukalla \*, Yemen

**Introduction:** Childhood mortality is defined as the probability of dying before or between a selective ages of childhood. It refers variably to probability that child will die in first two years or in the five years of life or in between the first and fifth birthday (1). Infant mortality rate = the number of deaths of infants under one year of age, in a given period of time, per 1,000 live births in the same amount of time. Children-under-five mortality rate (U5MR) = the probability of children dying between birth and their fifth birthday, expressed as per of 1,000 children born alive. (2). 30,500 children die every day in the lesser-developed world, and half of these deaths are associated with malnutrition. Lesser-developed countries

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currently have a child mortality rate of 91, and the least developed countries have a rate of 161.out of 1,000 live births From 1990 to 2000 there has been a 14 percent reduction in the children-under-5-mortality-rate (U5MR) globally with 3 million fewer deaths. More than sixty countries have reached the goal of reducing the U5MR by one-third (33 percent). Unfortunately, U5MR rates increased in 14 countries (nine of them in sub-Saharan Africa) and were unchanged in eleven others.(2.Neonatal mortality in Yemen is more intractable problem than post-neonatal and child mortality due to less response to general improvement in socioeconomic condition and their relation directly or indirectly to maternal condition, prematurity, congenital anomalies, intrauterine growth retardation, unsafe delivery practice and low birth weight(3,4,5,6), in Yemen all are important contributors to neonatal mortality (4,7,8,12).Post-neonatal and more than one year mortalities are more frequent due to environmental factors including nutrition and provide sensitive indicator for the socioeconomic condition under which people live and infectious diseases which begin to appear in the second year of life. (1,12). It needs healthy children and implementing efforts to decrease infant and child mortality is the only way to ensure a healthy population and prosperous future. Infant and child mortality is most affected by the health and sanitary conditions of the area in which a child is born.

In this study we tried to determine the incidence and most common causes of death in children under two years at Mukalla Maternity and Child Hospital (MCH) in the years 2001and 2002 and discuss its relationship to age, gender, body weight and residency.

### **Methodology:**

This is a retrospective descriptive study, conducted in Mukalla Maternity and Child Hospital (MCH) to assess childhood mortality below two years during the period 2001 and 2002, the study started at Nov.21/2002 and data were collected during December 2002 and January 2003. A total of 357 child below two years who died during 2001and 2002 at Mukalla Maternity and Child Hospital (MCH) were included in the study.

Patient's files were reviewed to collect information regarding: age, sex, weight, residence and the final diagnosis of cause of death.

Regarding birth weight, it is considered as:

Normal birth weight >2.5 Kg

Low birth weight 2.5 ->1.5 Kg

Very low birth weight 1.5 ->1 Kg

Extremely low birth weight <1 Kg (4).

The collected information are calculated manually in master table, analyzed and presented into tables..

**Results:**

The total number of children below two years of age admitted to Mukalla MCH in the year 2001 was, while in the year 2002 was. Two-hundred –four children died in the year 2001 the males constitute 113 while females 91 (Male: Female ratio 1.2: 1), in the year 2002 the total number of death was 153 (.97 were males and 56 were females with a ratio 1.7:1). Regarding residency 230 dead children were from urban areas, while 127 from rural. The causes of death in children below 2 years in MCH during 2001 and 2002 were shown in figure 1. Figure 2 showed causes of neonatal death in Mukalla MCH during 2001 and 2002. The causes of infant death were shown in figure 3. Gastroenteritis and prematurity were the most common causes of death (25.6% and 23.9% respectively). Figure 4 showed the relationship between age of the child and percentage of death where the neonatal period had the highest percentage of death (49.7% in 2001 and 56.5% in 2002). Figure 5 showed the relationship between birth weight of neonate and percentage of death.

Table (1): causes of mortality in children below 2 years in Mukalla MCH in 2001& 2002:

Causes	2001		2002	
	Frequency	Percentage	Frequency	Percentage
Gastroenteritis	57	28	28	18.4
Prematurity	38	18.7	33	21.7
Pneumonia	35	17.2	22	14.5
Asphyxia	16	7.9	15	9.8
Neonatal sepsis	12	5.9	13	8.5
Meningitis	8	3.9	4	2.6
Congenital anomalies	7	3.5	8	5.2
Marasmus	5	2.5	4	2.6
Bronchiolitis	5	2.5	2	1.3
Aplastic anemia	4	1.9	7	4.6
Congenital heart disease (VSD with heart failure, TGA)	5	2.5	8	5.2
Epilepsy	2	0.98	0	0
Hepatitis (acute fulminant)	2	0.98	0	0
Biliary atresia	2	0.98	3	1.9
Malaria	2	0.98	3	1.9
Hemophilias	2	0.98	0	0
Heart failure	1	0.49	1	0.7
Kwashiorkor	1	0.49	0	0
Drug poisoning	0	0	1	0.7
Kerosene pneumonia	0	0	1	0.7
<b>Total</b>	<b>204</b>	<b>100</b>	<b>153</b>	<b>100</b>

Figure(2): Causes of neonatal death, in Mukalla(MCH) hospital, in 2001 and 2002:

<b>Causes</b>	<b>2002 1-28 days Frequency</b>	<b>Percentage</b>	<b>2002 1-28 days Frequency</b>	<b>Percentage</b>
Prematurity	36	37.6	33	38.4
Pneumonia	20	19.4	9	10.5
Asphyxia	16	15.6	15	17.5
Neonatal sepsis	12	11.8	11	12.8
Congenital anomalies	4	3.9	7	8.1
Gastroenteritis	4	3.9	1	1.2
Bleeding disorders	1	1.9	0	0
Congenital heart diseases TGA Truncus arteriosus, large VSD	2	1.9	4	4.5
Neonatal jaundice and kernicterus	2	1.9	3	3.5
Marasmus	1	0.98	0	0
Hemolytic anemia		0.98	3	3.5
<b>Total</b>	<b>102</b>	<b>100</b>	<b>86</b>	<b>100</b>

Table (3): Causes of infant mortality, in Mukalla MCH in 2001 and 2002

<b>Causes</b>	<b>2001 <u>Infant</u> Frequency</b>	<b>Percentage%</b>	<b>2002 <u>Infant</u> Frequency</b>	<b>Percentage%</b>
Gastroenteritis	44	25.6	24	17.4
Prematurity	38	22.1	33	23.9
Pneumonia	27	15.6	18	13
Asphyxia	16	9.3	15	10.9
Septicemia	12	7	13	9.4
Meningitis	7	4.09	2	1.5
Congenital anomalies	7	4.09	8	5.8
Marasmus	5	2.9	3	2.1
Aplastic anemia	4	2.3	6	4.4

Congenital diseases VSD, PDA,	3	1.7	8	5.8
Bronchiolitis	3	1.7	2	1.5
Biliary atresia	2	1.1	3	2.1
Hemophilias	2	1.1	0	0
Heart failure	1	0.6	1	0.7
Malaria	1	0.6	1	0.7
Kerosene pneumonia	0	0	1	0.7
Total	172	100	138	100

Table (4): Causes of death in children between 1&2 years old in Mukalla (MCH) hospital, 2001-2002:

Causes	2001 12-24 month		2002 12-24 month	
	Frequency	Percentage	Frequency	Percentage
Gastroenteritis	13	41.9	4	28.5
Pneumonia	8	25.9	4	28.5
Bronchiolitis	2	6.4	0	0
Hepatitis	2	6.4	0	0
Epilepsy	2	6.4	0	0
Meningitis	1	3.2	2	14.2
Congenital heart disease Large VSD, PDA	1	3.2	0	0
Malaria	1	3.2	1	7.1
Kwashiorkor	1	3.2	0	0
Drug poisoning	0	0	1	7.1
Marasmus	0	0	1	7.1
Aplastic anemia	0	0	1	7.1
Total	31	100	14	100

Table 5: relationship between age of children and mortality in Mukalla (MCH) in years 2001 and 2002.

Age	2001		2002	
	Frequency	Percentage %	Frequency	Percentage %
1-28 days	101	49.7	86	56.4
1-6 months	46	22.6	39	25.6
7-12 months	25	12.3	13	8.5
13-18 months	22	10.4	9	5.9
19-24 months	10	4.9	6	3.6
Total	204	100	153	100

Discussion: The total number of children admitted to Mukalla MCH during period 2001 was 2963, of them 1450 were below 2 years of age, while those admitted in the year 2002 was 2734, 1315 were below 2 years of age, the percentage of death during year 2001 was 14%. While in the year 2002 it was 11.6%. These high figures are due to lack of facilities and shortage of medical services as well as poverty and ignorance. In comparison to developing countries like Afghanistan, Somalia and Ethiopia the death rate among children below 5 years of age were 28.3%, 11.2%, 17.1% respectively, while in other countries like Egypt, Jordan, Israel and Denmark the percentage were 3.9%, 3.3%, 6%, 4% respectively as reported by UNICEF statistics 2004.(13,14) the common causes of death in the year 2001 was gastroenteritis which may be related to high incidence of bottle feeding and poor hygiene, while in year 2002 the most common cause of death was prematurity and its complications which may be due to shortage of neonatal care unit at that time and lack of trained nursing staff. In the neonatal period the most common cause of death was prematurity and its complications, this is similar to study done in USA (1999) (6) but with less percentage due to advancements in care and facilities and trained personnel. Among infant death, gastroenteritis represents the highest percentage of death in 2001 and this is disagrees with study done in USA (7) in which gastroenteritis represent 5% of infant death the explanation is easy, due to poor hygiene and unsafe water supply as well as illiterate mothers and poor socioeconomic conditions in this country in comparison to USA community also lack of proper medical services. The commonest cause of death in 2002 was prematurity and its complications, this is in agreement to study done in Georgia (9) where the prematurity

represents two third of infant death, Georgia is considered developing country like Yemen probably the level of services almost the same to this country (Yemen). The present study shows that neonates are more vulnerable to death than in any other age groups (this is a fact)(3). Regarding the gender, the males are more susceptible to death than females without an obvious cause, probably related to the fact that the male gender is a risk factor for death. Regarding the birth weight low birth weight represents the highest percentage of underweighted dead neonates this may be related to maternal under nutrition, chronic diseases or bad habits such as smoking during pregnancy and this is similar to what was found in Bangladesh (8), in which low birth weight neonate death represents 61%.Regarding residency 70.6% of dead children come from urban areas while 29.4% were from rural areas, this could be explained by poor registration of all deaths in rural areas which is unfortunately a common finding in our society.

#### **CONCLUSION:**

1. Gastroenteritis and prematurity are the most common causes of child death in 2001-2002 respectively.
2. Neonates represent about one half of dead children
3. Males represent one half and two thirds of dead cases in 2001-2002 respectively.
4. Under-weight neonates represent two thirds and one half of dead cases in 2001- 2002 respectively.
5. More than two-third of dead cases were from urban areas.

#### **RECOMMENDATIONS:**

1. Establishment of proper intensive neonatal care unit to improve the survival of premature and low birth weight infants
2. Encouragement of breast feeding and clean and safe child feeding practices to reduce the deaths related to gastroenteritis.
3. Optimizing antenatal care of pregnant woman with emphasis on adequate nutrition especially during the second and third trimesters of pregnancy to reduce the rate of low birth weight.

4. Planning and implementation of health education programs regarding child health.
5. Arrangement of detailed researches about child health and mortality in Mukalla MCH by health organizations in Hadhramout governorate.
6. All effort should be directed toward the optimization and completion of records for more effective and accurate research results in future.

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