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MATERNAL MORTALITY IN BASRAH HOSPITALS; AN OVERVIEW OF THE LAST TWO DECADES

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ABSTRACT

This study aimed to determine the MMR in Basra hospitals for 20 years (1983-2002), to determine the main causes of maternal deaths with regards to direct, indirect & fortuitous causes & to verify the impact of major events including wars & sanction on the trend of maternal deaths. This is a retrospective study included all maternal deaths occurred in hospitals as well as deaths recorded in emergency departments, forensic medicine department & statistical units throughout the study period. Detailed information was taken to verify the cause of death in each woman. A total of 206 deaths occurred during the study period, MMR did not run a steady fashion, they showed gradual decline during 1980s. Following the second gulf war, there was considerable increase in MMR with the peak one observed in 1996. There after the ratio decline gradually to pre 2nd war levels. Direct obstetric causes remain the major causes of maternal death throughout the 20 years with, in a decreasing frequency, hemorrhage, sepsis & AFE were the major direct causes. However, indirect causes showed some, but noticeable increment during the sanction years. We concluded that the major political events, including wars that Iraq & Iraqi peoples exposed to had substantial adverse influence on the trends of maternal deaths. Although a direct maternal death outweigh indirect death, however, sanction years caused obvious increment in direct deaths.

Introduction

The health of mothers has been acknowledged to be a cornerstone of public health, and attention to unacceptably high level of maternal mortality has been a feature of global health and development discussion since 1980s[1].

It is estimated that more than 80% of maternal deaths could be prevented or avoided through actions that are proven to be effective and affordable, even in resource-poor countries[2].

The most recent world estimate of the overall maternal mortality ratio (MMR) is around 400 per 100,000 live births compared with 12 per 100,000 for the UK[3]. Iraq enjoys the fundementals for a strong and growing economy: it has the second largest oil reserves in the world. It has good water resources, agricultural and, a strong industrial base; however three successive wars and the economic sanctions imposed on Iraq for the past 12 years have also debilitating effect on the economy[4]. The imposition of sanctions on Iraq was meant to restrict access to worldwide markets including health services equipments and have caused enormous sufferring in Iraq. In addition oil-for-food programme was not meeting the minimum requirements of the Iraqi

people and definitely it has increased the sufferring of Iraqi children and women tremendously[5].

Patients and methods

This is a retrospective, descreptive study included all maternal deaths occurred in the major maternity hospitals in Basrah for 20 years extending from 1983 throughout 2002.

Data were collected from obstetrical wards, emergency departments, forensic medicine department and from statistical units in the hospitals. Informations gathered included clinical finding at hospital entery, past medical history, complications, medical and/or surgical interventions.

The record of each patient was carefully interpreted to identify the main cause of death, and also, to discover any substandard care. Maternal death were classified to be due to either direct obstetrical, indirect obstetrical and fortuitous causes. The effect of the sanction on the trend of maternal deaths and the contribution of other related factors were studied.

Results

Figure 1 present the MMR in Basrah hospitals throughout the study period, where there was steady decline in the figures of MMR in the 1980s until 1991, from this year on ward there was a progressive increase in the MMR reaching a peak in 1996, then the MMR showed rapid decline reaching the figures of the end of 1980s, by the years 2001 and 2002.

As shown in Table I, direct causes of death represented the bulk (77.7%) of overall maternal deaths. Haemorrhage rank first among the causes of direct death (40%) followed by sepsis (15%), AFE (7%), abortion and ectopic pregnancy (6.8%) and pregnancy induced hypertension (5.8%).

Indirect causes constituted 18.4% of all maternal deaths, among them hepatitis (13%) was the leading cause of indirect death followed by pulmonary embolism (2.4%) and cardiac disease (1.5%).

Fortuitous causes constituted (3.9%) of overall maternal deaths and were mainly due to burn and trauma.

In an attempt to study the direct and indirect maternal deaths with respect to the major events occurs in Iraq. Throughout the study period (the 2nd gulf war and subsequent economic sanction and the implementation of oil-for food programme), then deaths were grouped into 3 groups (1988-1990, 1991-1997, 1998-2002) and the results as shown in Table II, although direct deaths remains the leading cause of overall maternal death, outstanding indirect death throughout the three period, however, there was a clear decline in the proportion of direct deaths from 86.9% to 72.1%) with corresponding increase in the indirect deaths (from (9.4% to 23.8%) during the period of economic sanction and before the implementation of food for oil programme. The third period (1997-2002) showed fugire comparable to the figures of 1980s, (83.9% for direct deaths and 12.9% for indirect deaths).

Table III present the relationship between some risk factors with maternal deaths. The majority of maternal death 88.8% occurs in women at age between 20-40 years. Regarding parity, maternal death occurs more with parity 1-5 (40.8%). Only 23.8% of maternal deaths had adequate ANC compared with 51.9% and 24.3% had inadequate or no ANC respectively.

Three-quarter of maternal deaths had NVD with 21% delivered by C.S.

Regarding residency, more than 2/3 of maternal deaths were from rural areas. Finally, 55.8% of maternal deaths were delivered at hospital with the remaining had home delivery.

Discussion

Avoiding maternal death is possible, even in resource-poor countries, but requires the right kind of information on which to base programmes.

MMR trends in Basrah showed marked variations throughout the years of the study. In 1980s showed progressive decline due to general improvement in the health system during that period despite the 1st Golf war (1980-1988) which had no major effects on the infrastructures of the country. The MMR at 1980s was comparable to or less than most Asian countries except for Japan[5] Saudi Arabia[6], Indonesia[7], higher than European countries e.g. Belgium[8], Finland[9], italy[10], lithuania[11], Norway[12], higher than USA[13] and much less than some African countries e.g. Nigeria[14] and some Asian countries like India and China[15,16].

Following the 2nd Gulf war (1991), there was marked and progressive increase in MMR reached peak at 1996, and this may be linked to the economic sanction imposed by the UN.

War, augmented by the sanction caused catastrophic and damaging effects on all aspect of life in Iraq including health systems, and resulted in deficiency in all supplies including health services and also increase in the rate of poverity. At these years the MMR was higher than Asian countries except India and Bangladish, much higher than European countries and USA and comparable or slightly less than African countries.

MMR in Basrah hospitals is higher than MMR in Baghdad hospitals (1985-1994)[17].

Regarding the cause of death, direct obstetric causes were responsible for deaths in 160 patients, haemorrhage was the leading direct cause of maternal death, and haemorrhage is still the major cause of death throughout the world especially in developing countries[18]. In India it is continueous to be a major cause of maternal deaths for two decade[15], also it is the major cause in Tunis[19], Italy[10] and China [20].

PPH was the major cause of haemorrhage, followed by placenta praevia and placenta abruption respectively. Shortage of blood and lack of blood components, late arrival to the hospitals, home deliveries for patient having high risk pregnancy, lack of some essential drugs used in the treatment of PPH were the main factors responsible for substandard care.

The second leading cause of direct maternal death was sepsis, sepsis following vaginal delivery at home was the major cause due to utilization of unsterile equipment in addition to lack of some essential antibiotics. This raises the implementation for training and qualification of traditional birth attendant[21]. Sepsis is also a major cause of death in many countries and even in European countries[21].

AFE was the 3rd cause in the direct obstetric causes, the diagnosis of AFE was mainly on clinical ground only and no autopsy done for any maternal deaths, however AFE in pregnancy and labour are not uncommon with mortality up to 80%.

Abortion and ectopic pregnancy constitute the 4th cause of direct deaths, there is no way for legal termination of pregnancy except those having carcinoma and on cytotoxic therapy, so many women attempted illegal termination with subsequent infection, septicaemia and deaths.

Hypertension represent the 5th major direct causes, death mainly occur due to eclampsia with it's subsequent complications. Lack of important antihypertensive and anticonvulsants drugs, in addition to lack of important instruments required for intensive monitoring for those critical patients were among the factors responsible for substandard care. Hypertension is the major cause of death in some African countries[9, 24].

With regard to indirect obstetric causes of

maternal death; hepatitis stand as the major cause. Hepatitis epidemic occurred in peak during 2 years only, the type of hepatitis was diagnosed as hepatitis E which associated with high mortality during pregnancy[25].

The second indirect cause was embolism, however both AFE and pulmonary emblism was over esimated, because the diagnosis done on clinical ground only. Relactance or hesitancy in using prophylaxis against thromboemblism was considered as substandard care.

The distribution of causes of death (direct, indirect and fortitons) with respect to the study years, we noticed that there was an obvious increment in indirect maternal deaths during the years of sanction and this definitly due to overall destruction of the infrastructure in the country including water supply and sweage disposal which increased the epidemic of hepatitis, in addition to burn which might be due to lack of electricity and using oil operated tools for lighting and cooking.

With regard to other risk factors related to maternal death, no effect of maternal age noted, although some study found excess risk of death for women 35 years and older regardless of the parity[19].

Majority of maternal death occurred in multipara and this is in agreement with other reports [26].

Majority of maternal deaths occurred in women who had in adequate or no ANC. Adequate ANC had an important role in the prevention of anaemia, detection of high risk pregnancies, deciding the mode of delivery and detect any obstetric complications[27].

Most of death occurred in women from rural area and this may be due to lack of ANC, long distance from hospitals and attempted home deliveries for high risk pregnancies.

In conclusion, the major practical events, including wars that Iraq and Iraqi people exposed to had substantial adverse influence on the trends of maternal deaths. Although a direct maternal death outweight indirect death, however, sanction years caused obvious increament in indirect deaths.

Table I: Overall causes of maternal deaths

Types	Causes	No.	%
A- Direct obstetric causes No.: 160 **%: 77.7**	1. Haemorrhage	83	40
	2. Spsis	30	15
	3. AFE	15	7
	4 Abortion & ectopic	14	6.8
	5. Hypertension	12	5.8
	6. Anaesthesia	6	2.9
B-Indirect obstetric causes No.: 38 %: 18.4	7. Hepatitis	26	13
	8. pulmonary embolism	5	2.4
	9. Cardiac disease	3	1.5
	10. Sickle cell anaemia	2	0.9
	11. Leukaemia	2	0.9
C- Fortutious causes No.: 8 %: 3.9	12. Burn	6	2.9
	13. RTA & trauma	2	0.9
Total 206 100%	Total	206	100

Fig.1: Maternal mortality rate in Basrah hospital

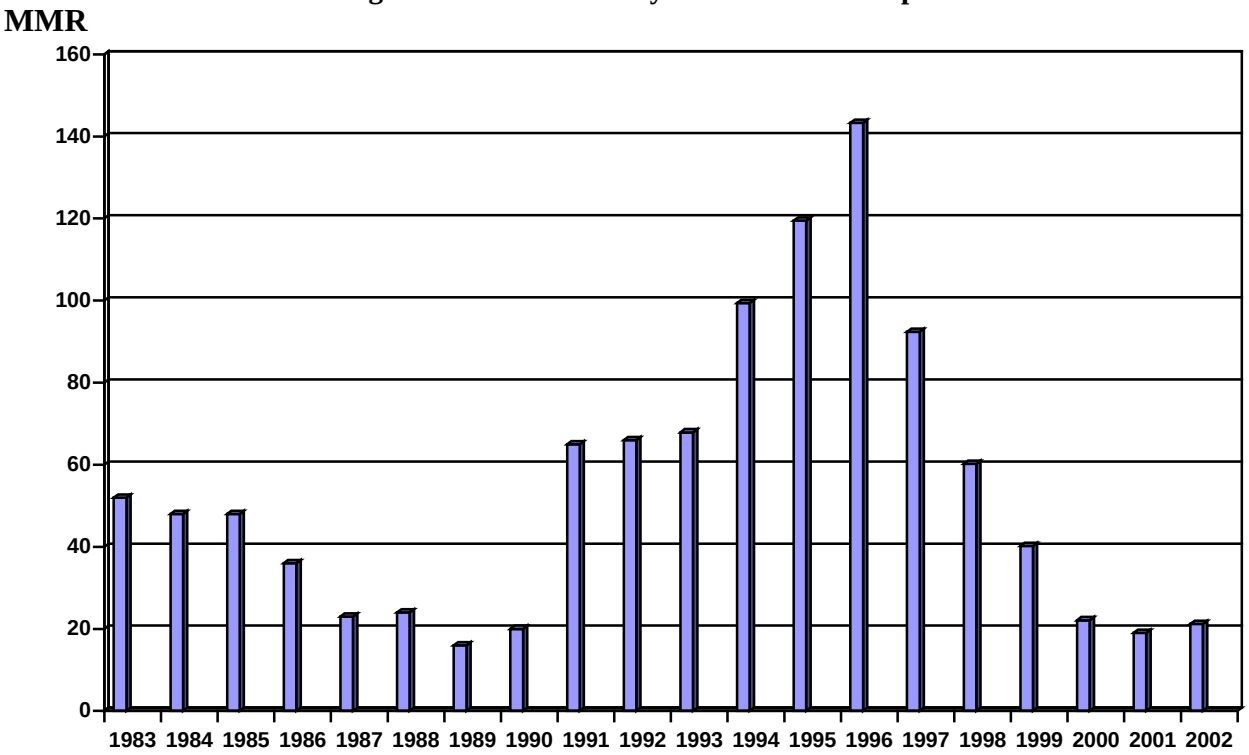

Table II: Type of maternal deaths according to the years

Years / Type	1983-1990		1991-1997		1997-2002	
	No.	%	No.	%	No.	%
Direct (160)	46	86.7	88	72.1	26	83.9
Indirect (38)	5	9.4	29	23.8	4	12.9
Fortutious (8)	2	3.9	5	4.1	1	3.2
Total (206)	53	100	122	100	31	100

Table III: Distribution of total maternal deaths according to certain risk factors

Factor	Classification	No.	%
Age (years)	<20	3	1.6
	20-40	183	88.8
	>40	20	9.6
Parity	Primigravide	20	9.6
	1-5	84	40.8
	>5	102	49.6
ANC	Absent	50	24.3
	Inadequate	107	51.9
	Adequate	49	23.8
Mode of delivery (190pt)*	NVD	142	75
	C.S	41	21.4
	Instrument	7	3.6
Residency	Rural	147	71.2
	Urban	59	28.8
Place of delivery (190)*	Home	85	44.25
	Hospital	105	55.75

* remaining 16 died before delivery

References

1- Abou Zahr C. Safe motherhood: a brief history of the global movement 1947-2002. Br.Med.Bull. 2003; 67: 13-25.
2- Why mother die 2000-2002. Report on confidential enquiries into maternal deaths in the UK. PRCOG press. 2004:P14.
3- Tariq Iqbal Bhutta: Sanctions against Iraq. BMJ. 2000; 321: 7275.
4- UNICEF: Iraq surveys show "humanitarian emergency. August 1999.
5- Roger Dobson Abergavenny. Sanctions against Iraq "double" child mortality. BMJ. 2000; 321:1490.
6- Schengchi, Tina A., Toe H. Maternal mortality in 12 teaching hospitals in Indonesia. Inter. Journal of Gynecology and Obstetric. 1981; 19: 259-266.
7- Al-Meshari A. (et al.). Trends in maternal mortality in Saudi Arabia. International Journal of Gynecology and Obstetric 1996; 52: 25-32.
8- Temmerman M, Verstraelen H, Martens G. et al. Delayed childbearing and maternal mortality. Eur. J. Obstet. Gynecol. Reprod Biol. 2004; 114: 19-22.
9- Gissler M, Berg C, Bouvier-Colle MH et al. Pregnancy-associated mortality after birth, spontaneous abortion, or induced abortion in Finland, 1987-2000. Am.J.Obstet. Gynecol 2004; 190: 422-7.
10- Biaggi A, Paradisi G, et al. Maternal mortality in Italy, 1980-1996. Eur. J. Obstet. Gynecol. Reprod. Biol. 2004; 114: 144-149.
11- Logminiene Z, Nolte E, Mckee M, et al. Avoidable mortality in Lithuania: 1991-1999 compared with 1970-1990. Public Health. 2004; 118: 201-210.
12- Vangen S, Bergsjo P. Do women die from pregnancy these days?. Tidsskr Nor Laegeforen. 2003; 123: 3544-5.
13- Callaghan VM, Berg CJ. Pregnancy-related mortality among women aged 35 years and older, United States, 1991-1997. Obstet. Gynecol. 2003; 102: 1015-21.
14- Okafar CB. Maternal and child health project in Nigeria. J. Natl. Black Nurses Assoc. 2003; 14: 51-8.
15- Chhabra S, Sirohi R. Trends in maternal mortality due to haemorrhage: two decades of Indian rural observations. J. Obstet. Gynaecol. 2004; 24: 40-3.
16- Zhang XS, Wang LH, Guo SF. An analysis of related factors for maternal mortality rate at country level. Zhonghua Yu Fang Yi Xue ZaZhi. 2003; 37: 342-5.
17- Al-Kubaisy Muna K. Maternal mortality in Baghdad hospitals 1985-1993. A thesis submitted for Iraqi Board in Obstetric and Gynecology (1995).
18- Bouvier-Colle MH. Maternal mortality in developing countries: statistical data and improvement in obstetrical care. Med Trop (Mars). 2003; 63: 358-65.
19- Mahbouli S, Basli M, Messaoudi F, et al. Maternal mortality: epidemiology, risk factors and evitability. Gynecol. Obstet. Fertil. 2003; 31: 1018-23.
20- Liang J, Wang YP, WuYQ, et al. Maternal mortality in rural areas of China. Sichuan Da Xue Xue Bao Yi Xue Ban. 2004; 35: 258-60.
21- Ray AM, Salihu HM. The impact of maternal mortality interventions using traditional birth attendants and village midwives. J. Obstet. Gynaecol. 2004; 24: 5-11.
22- Wildman K, Bouvier-Colle MH, MOMS Group maternal mortality as an indicator of obstetric care in Europe. BJOG. 2004; 111: 164-9.
23- Carrillo-Galindo A, Juarez-Azpilcueta AA, Cruz-Ortiz H. Amniotic fluid embolism direct cause of maternal death. Gac. Med. Mex. 2003; 139: 607-9.
24- Thonneau PF, Matsudai T, Alihonou E, et al. Distribution of causes of maternal mortality during delivery and post-partum: results of an African multicentre hospital-based study. Eur. J. Obstet. Gynecol. Reprod. Biol. 2004; 114: 150-4.
25- Klein NA, Mobic WC, Shaver DC, et al. Herpes simplex virus, hepatitis in pregnancy. Gastro. Enterology. 1991; 100: 239-244.
26- Fatihallah, Nather S.: Maternal mortality in the major referral maternal hospitals in Basrah. Journal of Community Medicine, Iraq. 1996; 9: 162-170.
27- Cleone Rooncy. Antenatal care and maternal health, how effective is it?. WHO/FHE/MSM, 1992, No.4.