

Eighteen years of maternity care in a new teaching hospital

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Summary

A new maternity hospital was inaugurated in Trinidad in 1981 to provide access for pregnant women to specialist antenatal care and to trained attendants during childbirth. As an academic tertiary-care institution, it also became a referral centre for high-risk pregnancies and obstetric emergencies. The efficacy of the services provided since inception was evaluated by measurement of mortality statistics, which are the most sensitive indices of maternal care. Over a period of 18 years, there were almost 100,000 births. Although the caesarean section rate was low, the perinatal and maternal mortality rates suggest that there is still a wide gap in obstetric standards between the developed world and this country. Improved vigilance for high-risk groups is required to identify potentially preventable deaths.

Key words: Maternal care; High risk pregnancies; Teaching hospital.

Introduction

In the early 1970's, the Government of Trinidad, in collaboration with the World Bank, funded the construction of a new maternity hospital to cope with an expanding fertile female population. It was agreed that the teaching of obstetrics and gynaecology should be established at its inception and the Mt. Hope Maternity Hospital became the first purpose-built University Hospital in the country. It became functional in January 1981 as part of the Faculty of Medicine of the University of the West Indies.

The facilities for achieving the goal of improving the outcome of pregnancy and for educational innovations are adequate. Ancillary services include a laboratory for haematology, ultrasound equipment (abdominal and vaginal), cardiotocography and two modern operating theatres. The hospital provides general access to standardized antepartum and intrapartum care and receives referral of high and low-risk pregnancies from polyclinics, district hospitals, general practitioners and specialist obstetricians.

Materials and Methods

We reviewed the annual statistical reports from the Medical Records Department and obtained data from inception on perinatal and maternal mortality rates since these are the criteria by which the standard of obstetric care is judged. In view of the remarkable rise in the rate of caesarean section universally, we studied data on the trends of this operation and its associated mortality.

Results

Number of births and perinatal mortality rate

Between January 1981 and December 1998, there were 99,962 births. The number of births during the first two six-year periods of study were similar, but there was a marked reduction during the 1993-1998 period (Table 1).

Perinatal mortality rate was defined as the number of stillbirths after 28 weeks' pregnancy plus the number of neonatal deaths up to 7 days (≥ 1000 g) per thousand live

and stillbirths. Babies with congenital abnormalities incompatible with life and those born elsewhere and admitted for neonatal care at Mt. Hope were excluded from the calculations.

The corrected perinatal mortality rate for the 1993-1998 period was 23.2/1,000 births and was not statistically different from that for previous years. Our overall figure of 22.6 contrasts with those from Saudi Arabia of 30-40 [1], from Bahrain of 19.6 [2], and from the UK of 8.7/1,000 births [3].

Maternal mortality

A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of a pregnancy, irrespective of the duration of pregnancy. Maternal mortality rate is defined as the number of deaths per 100,000 maternities.

During the 18-year period, there were 35 obstetric deaths and 99,530 maternities, giving a maternal mortality rate of 35.2. Thirty-four deaths were directly related to childbearing, and one indirect death occurred in a woman with acute leukemia.

Our maternal mortality ratio of 35.2 is 3-4 times greater than the ratio of 9.1 in the USA [4] and 12.2 in the United Kingdom [5]. Women in these advanced countries face a chance of one in 8,000-11,000 of dying during pregnancy and childbirth, while in Trinidad, the probability is one in 2,800. In other parts of the developing world, the statistics are even more staggering, estimated at 1 in 400 in Latin America [6], 1 in 250 in Asia [7] and 1 in 50 in The Gambia [8].

Pregnancy-induced hypertension accounted for the majority of deaths (Table 2); ten were due to eclampsia and nine to severe preeclampsia (a diastolic pressure of at least 110 mm Hg after 20 weeks gestation, concurrent with significant proteinuria or oedema or both).

There were five anaesthetic-related deaths: two anoxic deaths occurred in women awaiting emergency delivery by caesarean section, after repeated attempts at endotracheal intubation by a junior anaesthetist. One obese patient (>80 kg) never recovered from general anaesthesia following a

Table 1. — *Perinatal and maternal mortality rates.*

Period	No. of births	Perinatal deaths no. rate*	No. of mothers	Maternal deaths no. rate**
1981-1986	34,704	743 (21.4)	34,560	11 (31.8)
1987-1992	34,684	805 (23.2)	34,510	13 (37.6)
1993-1998	30,574	709 (23.2)	30,460	11 (36.1)
Total	99,962	2,257 (22.6)	99,530	35 (35.2)

* per 1,000 total births; ** per 100,000 mothers of live and stillbirths.

Table 2. — *Causes of maternal deaths.*

Diagnosis	Number of patients
Pregnancy-induced hypertension	19*
Coagulation failure	5*
Fatty liver	4**
Amniotic fluid embolism	2**
Anaesthetic anoxia	5
Sickle-cell crisis	1
Anaphylactic shock	1
Pulmonary embolism	1
Acute leukemia	1
Ruptured ectopic pregnancy	1

* 3 patients had severe preeclampsia; ** 1 patient had severe preeclampsia.

caesarean section and two mothers undergoing emergency caesarean section died from Mendelson's syndrome. All these anaesthetic deaths were considered to be avoidable either because of faulty intubation or failure to prevent the risk of acidic gastric contents.

Caesarean section

With the exception of year 1985, our caesarean section rate has ranged between 7.5 and 10.5 percent suggesting that there has been no significant increase in the rate since inception.

This observation demonstrates that we are not witnessing the trends in section rates experienced in the metropolitan countries. For example, in England and Wales, the figure was 10% in the early 1980's and rose from 11.3% in 1990 to 15.5% in 1995 [9]. In Scotland, it increased from 8.5% in 1975 to 16.0% in 1994 and a similar trend has been reported in Canada where the rate is currently 20% [10]. The most dramatic change has occurred in the USA where caesarean sections comprised 15.2% in 1978, 24.4% in 1987 and 22% in 1994 [11, 12].

Maternal deaths associated with caesarean section

Of the 35 obstetric deaths, 12 were associated with caesarean section, or a rate of 142 per 100,000 caesarean sections. Apart from the five anaesthetic-related deaths described above, three were due to uncontrollable postpartum haemorrhage due to coagulation failure; three preeclampsia developed pulmonary oedema from cardiac failure and one woman developed postpartum eclampsia and died from intracranial haemorrhage, postoperatively.

It is paradoxical that a liberal resort to caesarean section was advocated in developing countries to avoid maternal deaths from obstructed labour and uterine rupture [13], but the operation itself carries mortality risks. Our maternal mortality rate of 142 per 100,000 caesarean sec-

tions contrasts with figures of 1,800 in Africa and 100 in the Western World [14]. The rates reported from the USA of 25.7 [15], 60 [16] and 22.3 [17] appear impressive, but serious under-reporting has been detected [18].

Conclusion

The Mt. Hope Maternity Hospital is equipped with appropriate facilities and obstetric personnel to manage high-risk pregnancies. Although we have not experienced the surge in caesarean section rates observed elsewhere, the relatively high perinatal and maternal mortality rates are cause for concern.

One of the major goals in a maternity unit is to achieve the lowest possible perinatal mortality rate. While we have gone a long way toward this goal, it is desirable to reach a mortality rate which is close to the irreducible minimum. Pregnancy-induced hypertension and its ramifications are the major contributors to maternal demise.

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