The problem of postpartum haemorrhage in the Malaysia-Singapore region

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POSTPARTUM HAEMORRHAGE is still a major cause of maternal mortality. This is especially so in the underdeveloped countries of Asia, where an interplay of a multitude of factors become contributory, such as poor nutrition and anaemia, grande multiparity, and the lack of adequate skilled obstetric personnel and hospital facilities. Postpartum haemorrhage is also the most important underlying cause of maternal morbidity during the puerperium (Thomas, 1962).

Study of the Problem

The results of the problem of postpartum haemorrhage and maternal mortality pattern for the Obstetric Unit of the University Hospital, University of Malaya, in Kuala Lumpur, Malaysia, during the first $3\frac{1}{2}$ years since its establishment, from March 1968 to August 1971 inclusive, and covering just under 8,000 consecutive comprehensively documented deliveries, is reviewed in this paper.

RESULTS OF STUDY AT THE UNIVERSITY HOSPITAL

Maternal Mortality Pattern

In the period under review, there was a total of 7,771 mothers delivered at the University Hospital, in which there were 5 maternal deaths, giving an overall maternal mortality rate of 0.64 per 1,000 deliveries. Two of these deaths were due to severe septicaemia, two to fulminating eclampsia, and the last maternal death to advanced pulmonary tuberculosis with severe pulmonary in-

Table I
University of Malaya
University Hospital

Maternal Mortality Pattern

Period of Study:	March 1968 to August 1971 3½ years (42 months)
Total No. of Deliveries	7,771
Total No. of Maternal Deaths	5
Overall Maternal Mortality Rate	0.64/1,000
No. of Maternal Deaths from PPH	Nil
Maternal Mortality Rate from PPH	*Nil*

Table II
University of Malaya
University Hospital

PPH Incidence Pattern

Total No. of Deliveries	7,771
No. of PPH Deliveries	196
Incidence of PPH	*2.5% or 1 in 40 Deliveries*

Table III
University of Malaya
University Hospital

PPH Severity Distributional Pattern (196 cases)

	No. of Cases	%
PPH of 500 ml. to 1,000 ml.	164	83.7
PPH of 1,000 ml. to 1,500 ml.	9	4.6
PPH of over 1,500 ml.	4	2.0
PPH associated with BBA* (undetermined blood loss)	19	9.7

*BBA = Born Before Arrival

Table IV
University of Malaya
University Hospital

Retained Placenta Incidence Pattern

Total No. of Deliveries	7,771
No. of Retained Placenta Deliveries	123
Incidence of Retained Placenta	1.6% or 1 in 62.5 Deliveries
Incidence of Retained Placenta (Excluding BBA Deliveries)	1.3% or 1 in 76.9 Deliveries

Table V
University of Malaya
University Hospital

Retained Placenta Distributional Pattern (123 cases)

	No. of Cases	%
Retained Placenta with PPH	14	11.4
Retained Placenta/BBA with PPH	7	5.7
Retained Placenta/BBA without PPH	13	10.5
Retained Placenta only without PPH	89	72.4

Table VI
University of Malaya
University Hospital

BBA (Born Before Arrival) Pattern (116 cases)

	No. of Cases	%
BBA with PPH only	12	10.3
BBA with PPH and Retained Placenta	7	6.0
BBA with Retained Placenta only	13	11.2
BBA only	84	72.5

sufficiency. All 5 of these maternal deaths were unbooked, not having had any previous ante-natal care at this hospital. Hence, there was no maternal mortality from postpartum haemorrhage in this hospital, during the period under review.

P.P.H. Incidence Pattern

The criterion of postpartum haemorrhage used in this study is the widely accepted criterion of at least 500 ml. blood loss in the first 24 hours following delivery. There were 196 cases of postpartum haemorrhage amongst the 7,771 deliveries in this study, giving an incidence of PPH of 2.5%, or 1 in 40 deliveries. This incidence of 2.5% is low, compared to the estimated incidence of 10% postpartum haemorrhage, as quoted by Eastman (1956).

P.P.H. Severity Distributional Pattern

In Table III is shown the distributional pattern of the severity of the cases of postpartum haemorrhage. It is apparent that most (83.7%) of the 196 cases of postpartum haemorrhage had a total blood loss of 500 to 1,000 ml.. In 4.6% (9 cases) of the PPH cases, the blood loss was between 1,000 ml. to 1,500 ml.; and in a further 2% (4 cases) of cases, the blood loss was over 1,500 ml.. In the remaining 9.7% (19 cases) of the PPH cases, the delivery occurred before the mothers could be

Table VII
Comparative Maternal Mortality Trends from Post-Partum Haemorrhage

PLACE	KANDANG KERBAU HOSPITAL, SINGAPORE	ENGLAND & WALES	UNIVERSITY HOSPITAL UNIVERSITY OF MALAYA
Period Under Review	1955-1962 (8 Years)	1955-1960 (6 Years)	March 1968-Aug. 1971 (3½ Years)
Total No. of Deliveries	255,926	4,471,625	7,771
Total No. of Maternal Deaths	208	2,663	5
Total Maternal Mortality Rate	0.81/1,000	0.60/1,000	0.64/1,000
Total No. of Maternal Deaths from PPH	56	228	Nil
Maternal Mortality Rate from PPH	0.219/1,000	0.051/1,000	Nil
Total No. of Maternal Deaths Reviewed	208	2,196	5
% of Maternal Deaths from PPH	26.9%	10.4%	Nil
No. of Deaths from Atonic PPH with Retained Placenta	22	39	Nil
Maternal Mortality Rate	0.086/1,000	0.009/1,000	Nil
No. of Other PPH Deaths excluding Trauma	20	104	Nil
Maternal Mortality Rate	0.078/1,000	0.023/1,000	Nil
No. of Traumatic PPH Deaths	14 (12)	85 (62)	Nil
Maternal Mortality Rate	0.055/1,000	0.019/1,000	Nil

admitted to the hospital (BBA), and hence their total blood loss could not be accurately determined.

Retained Placenta Pattern

In this hospital, it is the standard routine practice to administer oxytocics in the management of the third stage of labour, prior to delivery of the placenta. This is either as I/V Ergometrine 0.5 mgm. with the delivery of the baby's anterior shoulder or as I/M Syntometrine 1 ml. with the crowning of the foetal head. To what extent this practice has influenced the incidence of retained placenta in this unit is difficult to evaluate. In this study, there were 123 cases of retained placenta amongst the 7,771 deliveries, giving an incidence of 1.6% or 1 in 62.5 deliveries. However, if the BBA deliveries are excluded, the incidence of retained placenta is 1.3% or 1 in 76.9 deliveries.

In Table V is shown the breakdown pattern of the 123 cases of retained placenta encountered in this study. This table is self-explanatory. It will be of note that in 72.4% of retained placenta cases, there was no associated postpartum haemorrhage.

B.B.A. (Born Before Arrival) Pattern

During the period under review, there were 116 cases, where the baby was born before arrival (BBA) of the mother at the University Hospital. Complications of the third stage of labour are the common reasons for such unplanned admissions. In this study, 10.3% (12 cases) of BBA cases were admitted because of postpartum haemorrhage, 6.0% (7 cases) with postpartum haemorrhage and retained placenta, and a further 11.2% (13 cases) of BBA cases because of retained placenta per se.

Table VIII

Post-Partum Haemorrhage

An Evaluation of the Factors Contributing to the Good Results at the University Hospital, University of Malaya

A. In Ante-Partum Period

1. Early booking for ante-natal care.
2. Routine haemoglobin estimation at booking visit, and thereafter at 4 weekly intervals.
3. Comprehensive investigations for all cases of anaemia with haemoglobin levels of 10 Gm.% or less.
4. Aggressive treatment of all cases of anaemia with haemoglobin levels of 10 Gm.% or less, including the liberal use of Total Dose Infusion of Imferron intravenously, when indicated.

B. In Intra-Partum Period

1. Blood group determination of all cases.
2. Cross-match blood (2 pints) for all cases with Hb. less than 10 Gm.%
3. Operation of a "Flying Squad" Service.
4. All deliveries are doctor-supervised.
5. I/M Synotometrine 1 ml. for all deliveries.
6. I/V Ergometrine 0.5 mgm. for all deliveries, with past history of PPH, or present episode of PPH.
7. Active management of the 3rd stage of labour using the "Controlled Cord Traction" philosophy.
8. Early and prompt manual removal of retained placenta, (when retained for more than half an hour).
9. Observance of the "Fourth Stage of Labour" philosophy.
10. Liberal use of blood and plasma expanders to combat shock.
11. Treatment of severe pos partum uterine atonicity by I/V Oxytocin Drips in high concentrations of 50, 100, or 200 units per pint.
12. The use of Direct Intra-Uterine Oxytocin by trans-abdominal route, found to be very effective by author in the management of cases of severe uterine atonicity, not responding to I/V Oxytocin Drip.
13. Skilled intrapartum obstetric practice to avoid traumatic PPH.
14. Prompt and aggressive treatment of all cases of severe accidental haemorrhage to prevent coagulation disorders and uterine atonicity.
15. Hysterectomy to be undertaken timely, when indicated. But good obstetric practice can avoid the need for hysterectomy.

Comparative Maternal Mortality Trends from Postpartum Haemorrhage

In Table VII is presented the comparative maternal mortality trends from postpartum haemorrhage in 3 areas. In the first column is presented the pattern as seen at the Kandang Kerbau Hospital, Singapore (Lean, 1965 and Sinnathuray, 1965). In the second column is the pattern prevailing in England and Wales at about the same time (Walker et al, 1957, 1960 and 1963). In the third column is presented the comparative data for the University Hospital, University of Malaya, Malaysia, for the first 3½ years (March 1968 to August 1971), since the inception of the Hospital Unit.

It is apparent from the study of Table VII that the overall total maternal mortality rate of 0.64/1,000 for the University Hospital, Malaysia, is much lower than the rate of 0.81/1,000 for the Kandang Kerbau Hospital, Singapore, and is very closely comparable to the rate of 0.60/1,000 for the developed area of England and Wales then. However, when the maternal mortality in relation to the varied aspects of postpartum haemorrhage is comparatively reviewed in the three regions (as shown in the rest of Table VII), it is quite apparent that the maternal mortality in all aspects of postpartum haemorrhage is several times (3 to 9) worse at the Kandang Kerbau Hospital, Singapore, as compared to that for England and Wales (Sinnathuray, 1965). In sharp contrast, there were no maternal deaths associated with any aspect of postpartum haemorrhage at the University Hospital, Malaysia, although there were 5 other maternal deaths (Table I).

An Evaluation of the Factors Contributing to the Good Results at the University Hospital, University of Malaya

It is reasonable to state that the availability of skilled medical personnel in adequate numbers

Table IX

"Action" Plan for the Reduction of Maternal Mortality and Morbidity from Post-Partum Haemorrhage in the Malaysia-Singapore Region

1. Improvement in the Socio-Economic Standards of the community, and thereby ensure optimal nutrition (especially anaemia) of pregnant women.
2. Comprehensive Ante-Natal Care:—
   - (a) Detection and treatment of anaemia
   - (b) Detection and treatment of Toxaemia of Pregnancy
   - (c) Selection of cases for Hospital confinement
3. Adequate Hospital Facilities for the confinement of high risk cases.
4. Health Education of the public to ensure full utilisation of the Available Health Services.
5. Skilled Intrapartum Obstetrical Care:—
   - (a) Adequate trained obstetric personnel
   - (b) Avoidance of prolonged labours
   - (c) Skillful management of the second stage of labour
   - (d) Proper and active management of the third stage of labour including the routine use of oxytocics and controlled cord traction
   - (e) Prompt treatment of causative factor of PPH
   - (f) Observance of the fourth stage of labour — close observation of the mother for one hour following the delivery of the baby.
6. Obstetric Anaesthetic Service.
7. Adequate Blood Transfusion Service:—
   - (a) Elective blood grouping/cross-matching of high risk Ante-Natal cases
   - (b) Establishment of a Regional (Hospital) Blood Transfusion Service
   - (c) Ready availability of blood stocks
8. "Flying Squad" Service, to ensure efficient treatment of postpartum haemorrhage outside the Hospital.
9. Comprehensive Family Planning Service, so as to reduce the number of grande multiparity who are most susceptible to have postpartum haemorrhage.

and the excellent physical facilities have, in general, been responsible for the low incidence of postpartum haemorrhage (Table II), the absence of maternal mortality, and low incidence of maternal morbidity from postpartum haemorrhage at the University Hospital, Malaysia. However, there are many specific factors operating not only in the intrapartum but also in the antepartum period of patient care, which have contributed to the good results at the University Hospital, and these have been tabulated in Table VIII, which is self-explanatory.

'Action" Plan for the Reduction of Maternal Mortality and Morbidity from Postpartum Haemorrhage in the Malaysia-Singapore Region

In Table IX is put forth an "action" plan for the reduction of maternal mortality and morbidity from postpartum haemorrhage in the Malaysia-Singapore region, based upon the author's experiences at the Kandang Kerbau Hospital, Singapore (Sinnathuray, 1965) and the University Hospital, Kuala Lumpur, Malaysia. The contents of this table (Table IX) are self-explanatory.

It is quite apparent from the suggested "action" plan that there are many aspects of the health services which have a contributory part to play, if the maternal mortality and morbidity trends from postpartum haemorrhage in Asian countries are to be effectively reduced to those comparable levels prevailing in the developed Western countries.

Summary

2. The overall maternal mortality pattern and the problem of postpartum haemorrhage at the Obstetric Unit of the University Hospital, University of Malaya in Kuala Lumpur, Malaysia during the first 3½ years, since its establishment in March 1968, and covering just under 8,000 consecutive deliveries, is comprehensively reviewed.

2. A comparative study is made of the maternal mortality trends in cases of postpartum haemorrhage, as seen in the two major teaching hospitals of the Singapore-Malaysia region, and for the "England and Wales" region of the United Kingdom. The absence of maternal mortality from postpartum haemorrhage, and the relatively low incidence of postpartum haemorrhage and maternal morbidity from postpartum haemorrhage at the University Hospital in Kuala Lumpur, as compared to the Kandang Kerbau Hospital, Singapore and United Kingdom appear strikingly obvious.

3. Some of the important factors that have contributed towards the attainment of better results at the University Hospital, Kuala Lumpur as compared to the Kandang Kerbau Hospital in Singapore are discussed.

4. Every maternal death from postpartum haemorrhage is theoretically an "avoidable maternal death", and in the light of this philosophy, an "action" plan is put forth for the reduction of maternal mortality and morbidity from postpartum haemorrhage in the Malaysia-Singapore region in particular, and the rest of Asia in general, based upon the above experiences.

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