Perinatal Autopsy Rates at the University Hospital of the West Indies: 2002–2008

KL Bishop, C Dupuis, P Nanton, K Clarke, C Bolt, C Chin-See

ABSTRACT

Objectives: *High perinatal autopsy rates are necessary for institutional management protocols and national policy-making. This study reviews perinatal autopsy rates and factors affecting these rates at the University Hospital of the West Indies.*

Method: *All perinatal deaths (stillborn infants ≥ 24 weeks gestation or 500 g; early neonatal deaths ie 0–7 days old) at the University Hospital of the West Indies, between January 2002 and December 2008, were reviewed retrospectively, using the annual perinatal audit records. The annual autopsy rates were calculated and the reasons why autopsies were not done examined.*

Results: *The average stillbirth (SB) autopsy rate was 59.6% (range 51.9 – 76.7%), while that for early neonatal deaths (ENDs) was 47.9% (range 34.4 – 63.2), with an overall average perinatal autopsy rate of 54.0% (range 42.2 – 62.2). Autopsies were requested in 79.3% and 51.7% of SBs and ENDs, respectively. Of those requested, 81.7% were done (75.2% stillbirths; 92.5% ENDs). In the ENDs, failure to request an autopsy was predominantly noted in premature infants weighing < 1000 g (75.2% of those not requested). In stillbirths, the reasons for failure to request were largely unknown with failure to gain permission accounting for only 20.3% of these cases.*

Conclusions: *The average annual perinatal autopsy rate at the University Hospital of the West Indies between 2002 and 2008 was 54.0%. This is below the internationally recommended rate of 75%. Failure to request an autopsy was the most significant factor contributing to this. The reasons for this are not entirely clear and require further study.*

Keywords: Perinatal autopsy rates, University Hospital of the West Indies

Tasas de Autopsia Perinatal en el Hospital Universitario de West Indies: 2002–2008

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RESUMEN

Objetivos: *Las altas tasas autopsia perinatal son necesarias para los protocolos institucionales de tratamiento, y el establecimiento de políticas a nivel nacional. Este estudio examina las tasas de autopsia perinatal y los factores que afectan estas tasas, en el Hospital Universitario de West Indies.*

Método: *Todas las muertes perinatales (mortinatos ≥ 24 semanas de gestación o 500 g; muertes neonatales tempranas, es decir, 0–7 días de nacido) en el Hospital Universitario de West Indies, entre el 2002 de enero y el 2008 de diciembre, fueron sometidas a examen retrospectivo, usando los registros de auditoría perinatales anuales. Las tasas de autopsia anuales fueron calculadas y se analizaron las razones por las que no se hicieron autopsias.*

Resultados: *La tasa de autopsia promedio de mortinatos (MN) fue 59.6% (rango 51.9–76.7%), mientras que la tasa de autopsia promedio de las muertes neonatales tempranas (MNT) fue 47.9% (rango 34.4–63.2), con una tasa promedio general de autopsia perinatal de 54.0% (rango 42.2–62.2). Se requirieron autopsias en 79.3% y 51.7% de los MN y las MNT respectivamente. De las autopsias requeridas, se realizaron 81.7% (75.2% mortinatos; 92.5% MNT). En relación con las MNT, la no solicitud de autopsia se notó predominantemente en infantes prematuros de peso < 1000 g (75.2% de aquéllos no solicitados). Con respecto a los mortinatos, se desconoce en gran medida las razones por las que no se hizo una solicitud, excepto el no haber obtenido permiso, lo cual explica sólo el 20.3% de los casos.*

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Conclusiones: *La tasa de autopsia perinatal promedio anual en el Hospital Universitario de West Indies entre 2002 y 2008 fue 54.0%. Esta cifra se halla por debajo de la tasa internacionalmente recomendada de 75%. La no solicitud de una autopsia fue el factor más significativo que contribuyó a ello. Las razones para esto no están completamente claras y requieren estudio posterior.*

Palabras claves: Tasas de autopsia perinatal, Hospital Universitario de West Indies

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INTRODUCTION

Perinatal autopsy rates vary widely around the world (1–3) and in some places, have been falling (3–5), along with autopsy rates for adults (6, 7). The individual perinatal autopsy serves a similar function as any other autopsy with the additional utility of counselling parents for future pregnancies. In addition, for suitable classification of perinatal deaths required for management protocols at institutional and national levels, it is necessary to maintain high autopsy rates, internationally recommended at 75% (8). This study reviews perinatal autopsy rates at the University Hospital of the West Indies (UHWI) Mona, between 2002 and 2008, and describes factors affecting these rates. This, to our knowledge, is the first review specific to perinatal autopsy rates in Jamaica.

MATERIAL AND METHODS

The data for this review was taken from the Pathology database used for the annual perinatal audit. These audits began in 2001 in conjunction with the Departments of Obstetrics and Gynaecology and Child Health, with the assistance of the Medical Records Department.

The audit reviews all perinatal deaths at UHWI, where a perinatal death is defined as a stillborn infant (SB) weighing ≥ 500 g and/or ≥ 24 weeks of pregnancy, or a liveborn infant dying within seven days of birth, subclassified as an early neonatal death (END). For both of these categories, the number and types of deaths (SBs or ENDs), the clinical details related to each death, including antenatal history, intrapartum history, birthweight and postnatal history where relevant, the number of autopsy requests, the number of autopsies done, autopsy findings and the reasons why autopsies were not performed, are recorded. Only infants whose mothers received antenatal care at UHWI were eligible for the audit.

From the cumulative audit data for the period 2002–2008, the perinatal autopsy rates for both SBs and ENDs were calculated and factors affecting these rates were analysed.

RESULTS

Table 1 shows the number of perinatal deaths for each year, 2002–2008. There were a total of 544 perinatal deaths: 285 SBs and 259 ENDs. There was no consistent pattern to the ratio of SBs to ENDs.

Table 2 and Fig. 1 show the autopsy rates. The average annual autopsy rate for stillbirths was 59.6% (range 51.9–76.7). The average annual autopsy rate for early neonatal deaths was 47.9% (range 34.4 – 63.2). Overall, the average annual perinatal autopsy rate was 54.0% (range 42.2–62.2).

Table 1: Number of perinatal deaths

Deaths/Year	2002	2003	2004	2005	2006	2007	2008	Total
Stillbirths (SBs)	47	31	27	48	43	34	55	285
Early neonatal deaths (ENDs)	24	35	32	38	47	39	44	259
Total perinatal deaths	**71**	**66**	**59**	**86**	**90**	**73**	**99**	**544**

Table 2: Summary of perinatal autopsy request practices and rates

	2002–2008	Range of rates (%)	Mean rate (%)
Stillbirths	Autopsy requests	74.5–91.7	79.3
	Percentage of requested autopsies performed	61.4–90.9	75.2
	Autopsy rate	51.9–76.7	59.6
Early neonatal deaths	Autopsy requests	37.5–73.7	51.7
	Percentage of requested autopsies performed	85.2–100.0	92.5
	Autopsy rate	34.4–63.2	47.9
Total perinatal deaths	Autopsy requests	55.9– 83.7	66.2
	Percentage of requested autopsies performed	70.8–95.1	81.7
	Perinatal autopsy rate	42.2–62.2	54.0

Table 2 also documents autopsy requests and requested autopsies performed. Of the 544 perinatal deaths, autopsies were requested in 360 with an average annual autopsy request rate of 66.2% (79.3% in stillbirths, 51.7% in early neonatal deaths). Of those requested, 294 (81.7%) were performed (75.2% in stillbirths; 92.5% in early neonatal deaths).

Figure 2 shows the reasons autopsies were not performed in stillbirths. Failure to request an autopsy was the most common (59/115). Failure to gain permission accounted for 20.3% (12/59) of these cases but the reason was unknown in the remaining 79.7%. Severe autolysis, as assessed by the pathologist, was the second most common reason (33/115). There was a miscellaneous group of 21 cases that included those with in-

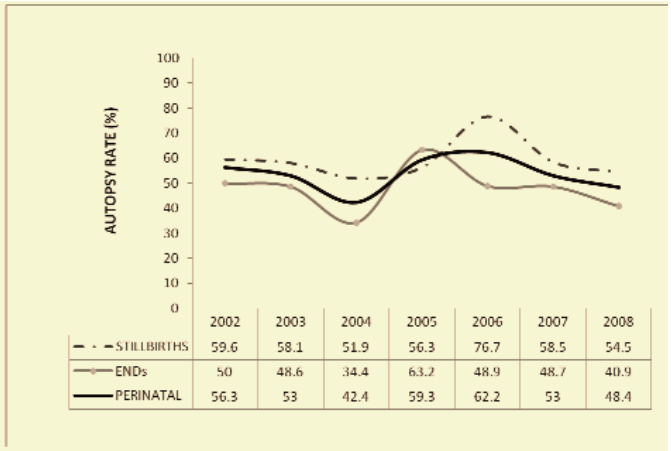

Fig. 1: Annual perinatal autopsy rates.

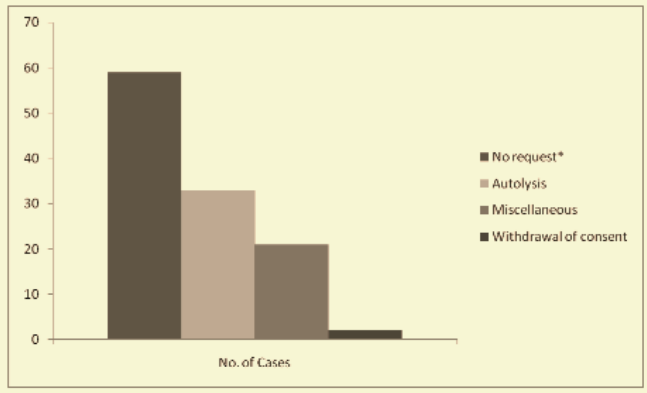

Fig. 2: Reasons for lack of autopsy in stillbirths (n = 115).
*No consent in 12/59 (20.3%); reason unknown in 47/59 (79.7%)

adequate summary (4/21), institutional inadequacies (4/21), infectious cases (3/21) and unknown reasons (10/21).

Figure 3 shows the reasons autopsies were not performed in early neonatal deaths. Failure to request autopsy was the main reason (125/135). Of these 125 infants, the majority (75.2%) were infants weighing less than 1000 g. Autolysis and a small miscellaneous group contributed to the remainder (10/135).

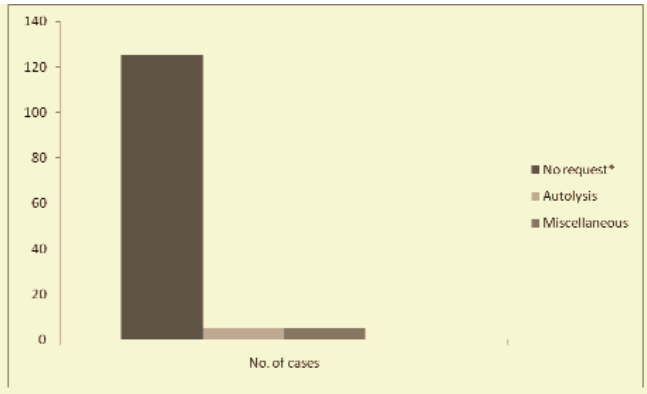

Fig. 3: Reasons for lack of autopsy in early neonatal deaths (n = 135).
*94/125 (75.2%) infants weighed < 1000 g; 31/125 (24.8%) infants weighed >1000 g

DISCUSSION

Perinatal autopsy is a vital source of important diagnostic, confirmatory or hitherto unknown findings (9), useful for short term management changes and counselling of parents. For these purposes and for accurate classification of death required for making major policy changes, it is recommended that perinatal autopsy rates be maintained at ≥ 75% (8). Over the seven-year period of review, the optimal perinatal autopsy rate of ≥ 75% was not achieved at UHWI.

The most significant factor for the low autopsy rates was failure to request an autopsy. There are two main reasons why perinatal autopsies are not requested: doctors failing to make an autopsy request and refusal to grant permission for autopsy by parents. In a United Kingdom survey, among the views expressed by doctors on perinatal autopsies were that they were necessary only if information garnered benefitted the parents, and not necessary in cases of extreme prematurity or when there were known congenital malformations (10). Lack of an available perinatal pathologist and concern that seeking consent may upset parents further were the most common reasons cited in another United Kingdom survey of doctors (11). It was also noted that doctors were more likely to seek consent than nurses (12). Reasons for parents not giving permission have also been investigated. In Australia, it was found that even where a senior clinician always asked parents' permission for autopsy, autopsy rates fell (5). Factors previously noted to decrease the likelihood of obtaining consent include no history of previous fetal loss, birthweight less than 1000 g or gestational age less than 28 weeks (13). On the other hand, parents were more likely to give permission when gestational age was advanced (5).

In our study, the reasons for not requesting an autopsy from the pathologist are not entirely clear. A record of failure to obtain permission from parents was present in 20.3% of stillbirths but sufficient data were unavailable to investigate possible causes in the remaining cases. In early neonatal deaths, the reasons for not requesting an autopsy are also unclear. However, it was noted that 75% of these were premature infants weighing less than 1000 g. Death in these premature infants is often assumed to be related to complications of prematurity and autopsies are therefore not deemed necessary (14).

Although an optimal autopsy rate was not achieved at this institution, optimal rates can be achieved by using the framework that currently exists for auditing perinatal deaths. Further efforts have to be made to increase the number of autopsy requests by sensitizing medical personnel and support staff to the value of these autopsies. This should include specific training in handling the very sensitive discussion with grieving parents on the need for autopsy, and in how to obtain permission. This has already been shown to result in increased autopsy rates (15). Furthermore, the number of cases affected

by autolysis can also be reduced by decreasing the interval between death and autopsy prosection. As this is largely due to delays in completion of proper documentation, the clinical staff should also be informed of the importance of this factor.

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