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Complications associated with caesarean delivery in a setting with high HIV prevalence rates

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Abstract

Objective: This study was designed to determine the prevalence of complications associated with abdominal delivery in a setting of high caesarean section (C/S) and HIV rates.
Method: A detailed review of the records of 737 C/S performed over a three-month period was conducted in a tertiary teaching hospital in Durban, South Africa.
Results: The overall complication rate was 14.2%. Major complications included endometritis, wound sepsis, post-partum haemorrhage and bladder injury. HIV infection may have a negative impact on morbidity rates. Disimpacting the fetal head vaginally had a significant association with endometritis ($p = 0.021$). The use of a corrugated drain did not prevent wound sepsis ($p < 0.001$).
Conclusion: Complications associated with C/S are common is a setting of high C/S rates and HIV infection.

Keywords: HIV; Caesarean section; Morbidity

1. Introduction

There have been a number of studies that have assessed complications associated with caesarean section (C/S). By far the most common complication is sepsis. Caesarean delivery is reported to be associated with a 5–20-fold greater risk of infectious morbidity when compared to normal vaginal delivery [1]. There are a wide range of complications associated with C/S, including injuries to surrounding structures and thromboembolic events [2–4]. A literature review however, shows that most reports on complications have concentrated on infectious morbidity. Furthermore, there have been no studies emanating from countries with high C/S rates in a setting of an HIV pandemic.

The association between post-operative sepsis and the different variables involved may not be as clear as one would believe. For instance, it seems logical that there should be an association between HIV infection and post-caesarean sepsis, yet interestingly, Rodriguez et al. [5] showed that post-operative morbidity among HIV-infected women undergoing C/S was no different to that in a matched control population.

2. Aim

This study aimed to determine the prevalence of complications associated with C/S in our setting of a high C/S rate (35%) and antenatal HIV prevalence of 30%. A secondary outcome was to determine if knowledge of the status affected the obstetric management of the patient.

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3. Methods

A retrospective analysis of C/S performed at King Edward VIII Hospital (KEH), South Africa, a large tertiary hospital over a 3 month period from 1 November 2003 to 31 January 2004.

The demographic data, pre-operative factors such as the number of per vaginal examinations, duration of rupture of membranes and delay in C/S as well as the operation characteristics were analysed to assess their contributions to the following outcomes: wound sepsis, endometritis, difficult haemostasis, thromboembolic events, and bowel or bladder injury.

Wound sepsis was defined as the breakdown of the suture line as a result of a subcutaneous infectious process. Endometritis was defined as a pyrexia (axillary temperature greater than 38 °C) post-delivery (excluding the first 24 h) that was sustained and associated with the presence of offensive lochia and a tender uterus. Difficult haemostasis was a factor mentioned by the surgeon in the postoperative notes after encountering haemostatic problems at C/S. Thromboembolic events included deep vein thrombosis and pulmonary embolism requiring anti-coagulation. Bowel and bladder injuries included iatrogenic injury to the respective organs recognised at the time of C/S or later.

Voluntary HIV testing is offered to all women attending the antenatal clinic and appropriate pre- and post-test counselling is provided. The testing involves an initial rapid bed-side test (Determine HIV1/2, Abbott Laboratories, IL, USA) and if positive, a repeat test with a different rapid test (SmartCheck, World Diagnostics, USA) is performed. If both tests reveal positive results, the individual is regarded as HIV-infected. A discrepancy in the test results warrants an ELISA test. Many women decline HIV testing, mainly because of fear of stigmatisation.

4. Statistics

All data was analysed using SPSS version 11.0. Associations between categorical exposures and outcomes were analysed using the Pearson's Chi-squared test. Continuous exposures were analysed using non-parametric Mann–Whitney tests.

5. Results

A total of 744 C/S were performed over the 3-month study period; 7 charts were misplaced, resulting in a retrieval

Table 1
Demographic data

	HIV status *n* (%)			Total *n* = 737
	Negative	Positive	Unknown	
Age (mean (S.D.))	26.3 (6.9)	26.9 (5.8)	25.3 (6.9)	
Parity				
0	76 (43.4)	71 (38.2)	177 (47.1)	324 (44)
1–4	94 (53.7)	113 (60.8)	190 (50.5)	397 (53.9)
5 and more	5 (2.9)	2 (1.1)	9 (2.4)	16 (2.2)
Booked	167 (95.4)	178 (95.7)	332 (88.3)	677 (91.9)
HIV status	175 (23.7)	186 (25.2)	376 (51.0)	737 (100)
Neverapine given (HIV pos)	0 (0)	184 (98.9)	(0)	184 (98.9)
RPR test for syphilis				
Positive	1 (0.6)	8 (4.3)	10 (2.7)	19 (2.6)
Negative	173 (98.9)	174 (93.5)	336 (89.4)	683 (92.7)
Unknown	1 (0.6)	4 (2.2)	30 (8.0)	35 (4.7)
Previous caesarean sections				
0	126 (72.0)	132 (71.0)	287 (76.3)	545 (73.9)
1	29 (16.6)	39 (21.0)	62 (16.5)	130 (17.6)
2	17 (9.7)	13 (7.0)	22 (5.9)	52 (7.1)
>2	3 (1.7)	2 (1.1)	5 (1.3)	10 (1.4)
Previous laparotomy	0	2 (1.1)	1 (0.3)	3 (0.4)
Emergency C/S	138 (78.9)	148 (79.6)	339 (90.2)	625 (84.8)
Elective C/S	37 (21.1)	38 (20.4)	37 (9.8)	112 (15.2)
Gestational age				
<28 weeks	0	2 (1.1)	10 (2.7)	12 (1.6)
29–34	20 (11.4)	18 (9.7)	70 (18.6)	108 (14.7)
35–36	18 (10.3)	19 (10.2)	41 (10.9)	78 (10.6)
37–41	128 (73.1)	137 (73.7)	247 (65.7)	512 (69.5)
>41	9 (5.1)	10 (5.4)	8 (2.1)	27 (3.7)

HIV: human immunodeficiency virus syndrome, RPR: rapid plasma reagin, C/S: caesarean section, Unbooked: no antenatal care.