INFECTION FOLLOWING CAESAREAN SECTION AT BROOME HEALTH CAMPUS

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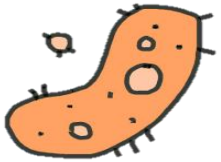
BACKGROUND:

Infections occurring following a caesarean section is a cause of significant maternal morbidity and mortality. Caesarean section is an important risk factor for post-partum infections, and can pose a 20 fold increased risk of post-partum infections in comparison to other modes of delivery. Endometritis and surgical site infection are the most common sites of postoperative infection, however the urinary tract, respiratory tract and nervous system are also potential sites of infection.



There are several risk factors for post-partum infection. The risk is higher for emergency caesarean section in comparison to elective caesarean section. Other risk factors for postpartum infection include high body mass index, nulliparity, maternal age under 20 years, diabetes, pre-eclampsia, elevated intra-operative blood loss and pre-existing infection. Many studies have shown that obesity and diabetes have a cumulative risk when paired.

AIM:

To review rates of infections following caesarean section at Broome Health Campus, including type of infection, risk factors for infection, clinical investigations, specimen collection, initial clinical management and outcomes of patients.

METHODS:

Over the time period of 01 January 2019 to 01 May 2019 patients were identified who were admitted to Broome Hospital and underwent caesarean section. They were then followed to assess those who develop an infection, endometritis, urinary tract infection, wound infection, sepsis, maternal sepsis, fever, or fever of unknown origin.

RESULTS:

All 36 patients included in the audit underwent caesarean section at Broome Hospital. Thirteen (36.1%) underwent elective caesarean section, with the remaining 23 (63.9%) having a non-elective caesarean section.

Of those who underwent elective caesarean section, 3 (23.1%) developed infection following caesarean section. As opposed to those who had a non-elective caesarean section, 12 (52.2%) developed infection. Thus, 80.0% of patients who developed infection post caesarean section had undergone a non-elective caesarean section.

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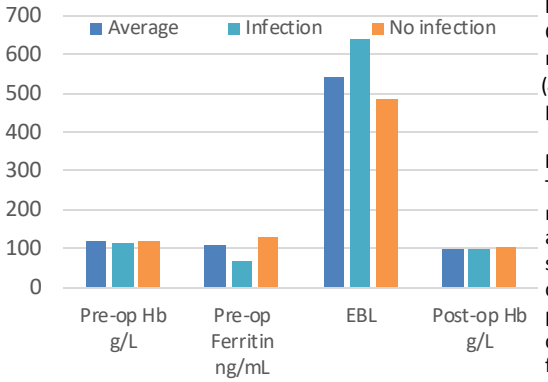
Blood Loss

In those patients that went on to develop infection post caesarean section, the average EBL was 639mls compared with 484mls in those who did not develop infection. (See Figure 1)

Figure 1: Blood loss and rate of infection



Multi-resistant bacteria

Of the six patients with multi-resistant bacteria alerts, 5 (83.3%) developed infection post caesarean section.

Prophylactic antibiotics

Thirty-two patients (88.9%) received prophylactic antibiotics prior to caesarean section. All four (100%) who did not receive antibiotic prophylaxis of these patients developed infections following caesarean section.

Antibiotic treatment

In those 15 patients identified as developing infection post caesarean section, 14 (93.3%%) were commenced on antibiotic therapy. The antibiotic therapy varied depending on the type of infection identified and the severity of the infection identified.

Infection post caesarean section

Fifteen patients (41.7%) developed infection post caesarean section. Types of infection included endometritis (33.3%), wound infection (26.7%), urinary tract infection (20.0%), mastitis (6.7%), chorioamnionitis (6.7%), bronchitis (6.7%) and pilonidal abscess (6.7%). (See Figure 2)

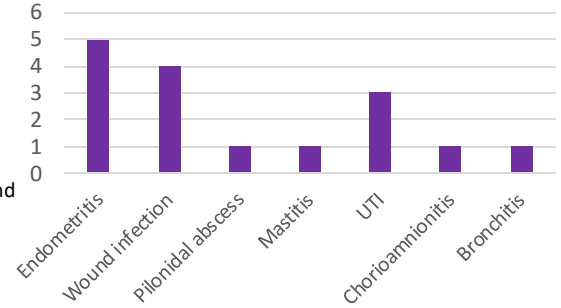


Figure 2: Types of infection

Factors associated with infection post caesarean section: See Table 1)

DISCUSSION:

Overall, the rate of infections following caesarean section appear to be higher a Broome Health Campus in comparison to the general population. The patient population however appear to be a high-risk group at Broome Hospital. Most patients who developed infection following caesarean section and Broome Hospital had multiple risk factors that may have contributed to this outcome.

An important risk factor for developing infection following caesarean section is the appropriate use of antibiotics. This was done relatively well at Broome Health Campus with a small amount of scope for improvement. In addition, since completion of this audit, new guidelines have been released which focus on prophylactic antibiotics with a specific use for patients with known multi-resistant bacteria. This may significantly improve the rate of infection following caesarean section at Broome Health Campus.

Patient number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Infection type	UTI	Wound	UTI	Wound	Wound	Bronchitis	UTI/chorio	Mastitis	Endometritis	Pilonidal abscess	Endometritis	Wound	Endometritis	Endometritis	Endometritis
Days post op	8	13	7	1	2	2	0	5	9	15	16	13	17	2	1
ATSI	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y
NELUSCS?	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y
Infection prior?	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
ROM >18 hours?	N	N	Y	N	N	N	N	N	N	N	N	N	Y	N	N
Labour >10 hours?	Y	N	N	N	N	N	N	N	N	Y	N	Y	Y	Y	Y
GBS positive?	N	N	N	N	Y	N	Y	N	Y	N	N	N	N	Y	N
Obese? (BMI >30)	N	N	N	Y	N	N	N	N	Y	N	N	Y	N	N	N
Diabetes?	N	N	N	Y	Y	N	N	N	Y	N	Y	Y	Y	N	N
Poor control	N	N	N	Y	Y	N	N	N	Y	N	Y	N	N	N	N
Full dilation?	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N
Antibiotic prophylaxis	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
EBL >1000mls	Y	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N
Sepsis?	N	N	N	Y	N	N	Y	N	N	N	N	N	N	Y	Y
MRSA	N	Y	N	Y	N	N	Y	N	Y	N	Y	N	N	N	N
Antibiotic therapy	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Initial antibiotic therapy	Augmentin DF	Augmentin DF	Nitrofurantoin	IV amoxycillin, gentamicin, metronidazole	Augmentin DF	Clarithromycin	IV ceftriaxone, gentamicin, amoxycillin	Cephalexin	IV amoxicillin and gentamicin	Augmentin DF	Nil	Augmentin DF	Augmentin DF	IV amoxycillin, gentamicin, metronidazole	IV amoxycillin, gentamicin, metronidazole
Appropriate ABx?	Y	Y	Y	N	Y	N	N	N	N	Y	N	Y	Y	Y	Y
Patient outcome	Improved	Return to theatre	Improved	Return to theatre	Improved	Improved	improved	Improved	Return to theatre	Return to theatre	Improved	Improved	Improved	Improved	Transfer to KEMH

Table 1: Factors associated with infection post caesarean section

REFERENCES:

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