

An audit of post Caesarean section infections prior to and after the introduction of a prevention care bundle

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Introduction

The obstetrics and gynecology department of a busy metropolitan hospital introduced a prevention care bundle in an attempt to reduce the incidence of post Caesarean section (CS) infections. For the purposes of this audit post CS infection will encompass Surgical Site infections (SSIs), endometritis and other post operative infections with a clear surgical cause. As per the WHO definition of post operative infections, no cases > 30 days post op were included.

Prevention Care Bundle Implemented in May 2019

- Re-education of staff on evidence based practices such as hand hygiene and pre-operative preparation
- Prophylactic antibiotic therapy (Cefazolin 2g intravenously)

- Unidirectional tissue control devices for closure of rectus sheath and skin (barbed suture material coated in antibacterial agents and the lack of knots is believed to reduce colonisation)
- Negative pressure dressings suggested for women with a BMI ≥ 35

Methods

An audit of all Caesarean sections performed 6 months prior to and 6 months immediately following the introduction of this Prevention Care Bundle was carried out. The number of post CS infections before and after the intervention was analysed. Variables with potential links were also looked into, such as BMI and the presence of gestational diabetes. Both patient groups contained a mixture of primary C-sections and repeat C-sections. There was a similar distribution of cases with gestational diabetes amongst both groups. We do acknowledge the difficulty in ensuring both patient groups are identical in terms of demographics and other variables in a retrospective review.

Results

Time period audited	1/11/2018-1/5/2019	1/5/2019-1/11/2019
Total number of Caesarean sections	552	545
No of surgical site infections	16 (2.9%)	9 (1.7%)
No of endometritis/other op infections	5 (0.91%)	3 (0.55%)

Average BMI = 35.7

- No of post CS infection cases with a diagnosis of Gestational Diabetes = 14/33
- No of post CS infection cases who had concomitant procedures = 7/33
- No of emergency CS cases that developed postop infections = 17/33
- No of elective CS cases that developed postop infections = 16/33

- Significant reduction in SSIs but no appreciable reduction in endometritis/other post CS infections
- Similar incidence of post op infections overall in both elective and emergency CS
- SSIs more prevalent after emergency C-sections while endometritis seen almost exclusively post elective cases
- Obesity appears to be a major risk factor for post operative infection
- No correlation noted with gestational diabetes, parity, concomitant procedures (such as tubal ligation) or number of previous C-sections
- Certain evidence based practices like the use of negative pressure dressings and vaginal prepping (especially in emergency cases) were too surgeon-dependant to compare

Discussion

The most innovative feature of this prevention care bundle is the inclusion of unidirectional antibacterial tissue control devices in place of conventional suture material for closure of the rectus sheath and skin. A few randomized controlled trials have demonstrated the effective use of these devices in Caesarean sections and other abdominal surgeries with regards to reduced closing times and blood loss (1). None to the best of our knowledge have directly addressed the effect on SSIs/post op infections as a result of their mandatory use. We did come across one similar study that discussed a successful bundled care approach to post CS SSIs in Australia (2). RCTs to further validate a) the routine use of barbed antibacterial sutures in C-sections and b) negative pressure dressings for obese patients are areas for potential exploration.

References

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