THE INCIDENCE AND DETERMINANTS OF SURGICAL SITE INFECTION AND POSTOPERATIVE FEBRILE MORBIDITY AFTER OB/GYN MAJOR OPERATIONS IN HUNGVUONG HOSPITAL, VIETNAM

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ABSTRACT

A prospective study and a related intervention were carried out to examine the magnitude and the determinants of surgical site infection (SSI) and postoperative febrile morbidity (PFM) following Ob/Gyn major operations at Hungvuong Hospital, Vietnam, from May 1997 to October 1998. The prospective study included 1,882 major operations, whereas 172 women with premature rupture of membrane at term and unfavorable cervix were recruited into the randomized controlled trial.

Postoperative infections were identified by ward rounds, review of laboratory results and patient follow-up until 30 days after operation. Independent determinants of SSI/PFM were identified using multiple logistic regression modeling. In the intervention, 172 subjects were randomly assigned to receive either vaginal misoprostol or intravenous oxytocin to induce labor. Primary outcomes were the interval from start of induction to vaginal delivery, and maternal/neonatal infection complications.

The magnitude of hospital-acquired infections in Hungvuong Hospital was considerable despite the extensive use of antimicrobials. Whilst approximate one-quarter of study subjects contracted PFM, the rate of hospital-acquired infections varied from 5.0% following salpingectomy to 20.8% following total hysterectomy. We noted the preponderance of SSI contributing 64.1% of all postoperative infections. Approximately one-third of SSI and especially as many as 61.8% vaginal cuff infections following vaginal hysterectomy were recorded after patient discharge from hospital. PFM and SSI significantly lengthened the postoperative hospitalized stay by one and four days, respectively ($P<0.0001$). Similarly, SSI significantly increased the requirement for therapeutic antibiotics (21.4 versus 11.2 antibiotic-days, $P<0.0001$). The practice of antimicrobials within the hospital was, however, considered to be unnecessarily prolonged with a total of around 22,800 antibiotic-days given for 1,882 operations, yielding an average of twenty-eight doses of antibiotic prescribed for an Ob/Gyn major operation. A substantial dollar cost could have been saved if the standard recommendation for antibiotic prophylaxis had been widely practised in the hospital.

Additionally, we identified the determinants independently associated with PFM and SSI following Ob/Gyn major operations. Host susceptibility appeared to have the greatest predictive value for subsequent occurrence of these postoperative infection complications. Further, preoperative performance of uterine invasive diagnostic procedures, namely fractional curettage and cervical biopsy, independently predisposed to postoperative

infections. Upon multivariate analysis, preoperative curettage doubled the risk of PFM (adjusted OR= 2.0, 95%CI= 1.2-3.2) and cervical biopsy carried three-fold increased risk of SSI following total hysterectomy (adjusted OR= 3.1, 95%CI= 1.2-7.6). Hysterectomy performed from one to two weeks after these procedures was associated with highest risk of SSI (adjusted OR= 2.7, 95%CI= 1.3-5.5) and PFM (adjusted OR= 2.1, 95%CI= 0.8-5.5). Additionally, total hysterectomy indicated for leiomyoma was associated with higher risk of postoperative infections compared with abdominal myomectomy.

As premature rupture of membrane is not only the most common complication of pregnancy but also carries the substantial risk of post-Cesarean infections, an intervention targeting this high-risk population was of large clinical impact. A randomized controlled trial was carried out to test whether 25µg vaginal misoprostol repeated at four-hour intervals only if indicated could shorten the interval from start of induction to vaginal delivery by at least 120 minutes compared with oxytocin drips. Vaginal misoprostol in this conservative dosing regime would shorten the interval by 11.6 minutes (-156, 132 minutes; P=0.33) but slightly increased the rate of chorioamnionitis (relative risk= 1.7; 95%CI=0.6, 4.4; P=0.29). None of other complications was significantly different between the two regimes and the relative risk were all close to the unity

In conclusion, the magnitude of postoperative infections following Ob/Gyn major operations in Hungvuong, even though it was considerable, compared favorably with those in other settings

throughout the world. The findings have several clinical implications. First, the infection control unit should be properly implemented. Second, high-risk patients should be identified early and closely monitored. Underlying co-morbidity should be intensively treated if indicated. Third, the practice of curettage should be individually determined rather than routinely done. Finally, myomectomy and misoprostol be considered as a promising alternative to total hysterectomy in leiomyoma management and to oxytocin in PROM management, respectively. Further study would be necessary to justify the wider application of these two treatment regimes in current gynecology and obstetrics.