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A RANDOMIZED CONTROLLED TRIAL ON PROPHYLACTIC ANTIBIOTICS AND PELVIC ORGAN PROLAPSE SURGERY

Hypothesis / aims of study

It is documented that prophylactic antibiotics by the time of vaginal hysterectomy reduces the risk of postoperative infection (1-3). This has not been tested for in relation to simple pelvic organ prolapse (POP) surgery, e.g. anterior and/or posterior colporrhaphy, enterocele and perineorrhaphy. The aim of this study was, therefore, to investigate if a single dose of 1.5 g cefuroxim intraoperatively significantly could reduce the risk of postoperative infection after simple pelvic organ prolapse surgery.

Study design, materials and methods

The study was conducted as a randomized, controlled trial at a university hospital with extern monitoring from a GCP unit. According to a power calculation, a total of 200 women were to be included (80% power and 5% type 2 error). A half way interim analysis was planned and if significant risk reduction was found the study should be stopped. Inclusion criteria were age 18+ years and planned simple POP surgery. Exclusion criteria were hysterectomy, vaginopexi and no ability to give consent. The women were included only after written, informed consent. They were randomized to either “cefuroxim 1.5 g” or “no treatment”. Treatment arm was kept blinded to the surgeon, the ward staff and the patient. Urine samples were collected one day pre- and postoperatively, day 7 and day 30. Age, BMI, smoking habits, treatment with local estrogen, type of procedures, operation time, blood loss, urinary tract infection (UTI) within 7 days and 30 days and “other infections” i.e. febrile episodes, wound infection or pneumonia within 30 days after surgery were registered in Microsoft® access 2000. A logistic regression analysis controlling for possible confounders (i.e. age, smoking habits, surgery time and blood loss) was performed using the cumulative risk of UTI 7 days and 30 days postoperatively as well as the cumulative risk of “other infections” 30 days postoperatively. A p-value of < 0.05 was considered statistically significant. All analyses were performed using SAS 9.1® (Statistical Analysis System, Cary, North Carolina, USA).

Results

N=111 women were included before unblinding for the interim analysis. Twelve women were excluded due to lack of randomization, withdrawal of consent, missing data and intraoperativ decision of extended surgery. The interim analysis was based on N=99 cases. The “cefuroxim 1.5 g” and the “no-treatment” groups were comparable concerning age, BMI, smoking habits, surgery time and blood loss (Table I) as well as the extend of surgery. The logistic regression analysis showed that a single dose of cefuroxim 1.5 g significantly reduced the cumulative risk of UTI 7 days postoperatively, OR 0.28, CI95(0.10;0.76), p = 0.01. This effect could not be demonstrated 30 days postoperatively, OR 0.6, CI95(0.25;1,50), p = 0.28. Cefuroxim was not protective against “other infections” within 30 days postoperatively, OR 0.79, CI95(0.31;2.04), p = 0.63. Smoking significantly increased the risk of “other infections” within 30 days postoperatively, OR 4.10, CI95(1.35;12.5), p=0.01.

Table I

Comparison of data among patients in the treatment and the non-treatment arm in an RCT with intraoperative “cefuroxim 1.5 g” versus “no treatment”.

	“Cefuroxim 1.5 g” arm	“No treatment” arm	P-value
No. of patients	51	48	
Age (years) Median(5-95% range)	59 (37 - 81)	58 (42 - 79)	NS
BMI (kg/m2) Median(5-95% range)	25 (20 - 33)	24 (21 - 33)	NS
Smoking (yes/no)	9 / 42	13 / 35	NS
Local estrogen (yes/no)	41 / 9	41 / 6	NS
Operation time (min) Median(5-95% range)	59 (30 - 145)	60.5 (22 - 119)	NS
Blood loss (ml) Median(5-95% range)	50 (10 - 150)	50(10 – 150)	NS

Interpretation of results

There was a significantly increased risk of urinary tract infection within 7 days after simple POP surgery in patients who did not receive a single dose of cefuroxim 1.5 g intraoperatively. A similar, protective effect of cefuroxim against UTI and “other infections” within 30 days postoperative could not be demonstrated. Smoking significantly increased the cumulative risk of other infections, i.e. wound infection, febrile episodes and pneumonia within 30 days after simple POP surgery.

Concluding message

We recommend to use a single dose of intraoperative cefuroxim 1.5 g in relation to simple POP surgery, as this proved to reduce the risk of UTI within 7 days postoperatively. Women who smoke and plan to have POP surgery should be informed that smoking will increase their risk of postoperative infection for up til 30 days postoperatively.

References

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Is this study registered in a public clinical trials registry?	**Yes**
Specify Name of Public Registry, Registration Number	**The EudraCT number 2004-005138-38 has been issued for your Sponsor's Protocol Code Number 2602-415.**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**The Ethics Comitée for Copenhagen and Frederiksberg Sundhedsforvaltningen Sjællandsgade 40 2200 København N DENMARK**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**