NFOG THESIS REGISTRY

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Title of thesis: **Treatment of Labour Contractions and Pain** - Effects on Foetal Well-being and Uterine Contractility Monitored by Cardiotocography

English abstract: The aim of this study was to evaluate the applicability and safety of some medical treatments of labour contractions and pain. Special interest was focused on the effects of various kinds of medication on foetal well-being, monitored by cardiotocography (CTG), progress of labour and neonatal outcome. In addition, the reliability of CTG as a tool to assess foetal condition during labour and delivery was studied. The kinds of medication that affect uterine contractility via β-receptors in specific labour disorders (dystocia and foetal distress) were evaluated. The applicability, safety and effectiveness of paracervical block as an alternative pain relief method in the first stage of labour were studied. Inter-observer agreement in interpretation of intrapartum CTG readings and obstetricians' recommendations for intervention based on CTG data were also evaluated.

The study population consisted of 617 parturients giving birth at Tampere University Hospital between years 2001 and 2004, and 31 specialist and resident obstetricians assessing 22 intrapartum CTG readings.

In the randomised, double-blind study, the β-blocking agent propranolol combined with oxytocin versus placebo plus oxytocin, in the treatment of arrested labour (dystocia) was studied. There was no difference between the groups in the rate of Caesarean sections but the percentage proportion of the augmented part of labour was significantly shorter with propranolol. Propranolol did not affect foetal CTG pathology, and there were no neonatal side-effects. Propranolol can be used as an additional form of medication in arrested labour.

After recognition of severe CTG abnormality in the first stage of labour, and then using a β-mimetic agent (ritodrine hydrochloride or bufenine hydrochloride), in 67% of cases the CTG pattern normalized at a mean of 4 minutes after the beginning of intravenous tocolysis in the retrospective study. No characteristic feature of the parturient, labour course or CTG abnormality, nor the parameters of uterine contractile activity were found to be predictive factors as regards the effect of tocolysis on CTG. No adverse effects of tocolytic therapy were found. Tocolysis with a β-mimetic agent is an effective method to normalize the CTG pattern during the first stage of labour, even in cases without uterine hypertonicity.

In the randomised, double-blind study, paracervical block (PCB) with levobupivacaine and racemic bupivacaine were compared by means of CTG pathology. No significant differences were found between the drugs in safety or effectiveness. The incidence of any pathological result in CTG was 10.4% in the levobupivacaine group and 12.8% in the racemic bupivacaine group. The incidence of foetal bradycardia in the groups was 2.6% and 3.8% respectively. All the CTG changes were transient, and no operative intervention was indicated in CTG. No difference in analgesic effect between the drugs was found. Most of the parturients in the levobupivacaine group (97%) and in the

racemic bupivacaine group (96%) had spontaneous vaginal delivery. Neonatal outcome was good in both groups. The best pain relief after PCB was achieved among primiparas. Good pain relief was connected with a high pain score before PCB, and an experienced obstetrician performing the PCB.

In an inquiry form study 31 obstetricians interpreted intrapartum CTG readings from 22 parturients. Inter-observer agreement in CTG interpretation and decision-making was assessed by means of proportions of agreement (Pa) with 95% confidence intervals (CIs). Inter-observer variation as regards abnormal CTG readings, and recommendations for intervention, was found to be wide. To improve the reliability of CTG, uniform classification and standardized training in CTG interpretation are needed, as well as increased use of computerized CTG.

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