

ORAL POSTER PRESENTATIONS

Op 1

Effect of an antiatherogenic diet on maternal and fetal Doppler velocimetry: a randomized clinical trial

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Women with a history of placental insufficiency have increased risk of cardiovascular disease. The role of maternal nutrition during pregnancy on the foetoplacental and uteroplacental circulation is unknown. We investigated the effect of an antiatherogenic diet on Doppler indices in mother and foetus. 290 non-smoking Caucasian women, without previous pregnancy complications, aged 21 to 38 years, and carrying a single foetus, were randomized to continue their usual diet (controls, n =149) or to adopt a low-cholesterol low-saturated fat diet (intervention, n=141) from gestational week 17-20 to birth. Doppler velocimetry of the umbilical artery and both uterine arteries were assessed at gestational weeks 24, 30, and 36. The physiological decrease in umbilical artery pulsatility index (PI) from week 24 to week 30 was more pronounced in the intervention compared to the control group with median values of -0.17 (interquartile range -0.29, -0.06) and -0.11 (interquartile range -0.25, 0.01) respectively, (p = 0.048). Assignment to the intervention diet did not influence the changes in the mean PI value of the two uterine arteries in the same period, (p = 0.3). The change in umbilical artery PI and the mean PI value of the uterine arteries between weeks 24 and 36 were not statistically significantly different between the groups, (p = 1.0 and p = 0.2 respectively). This study shows that dietary intervention can modify foetoplacental circulation in midpregnancy. Specifically, an antiatherogenic diet during pregnancy may favourably affect Doppler velocimetry in the umbilical artery.

Op 2

Cervical length in women in preterm labour and intact membranes: relationship to intra-amniotic inflammation /infection, cervical inflammation/ infection and preterm delivery

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Background: Intra-amniotic inflammation and infection in women with preterm labour (PTL) are related to adverse perinatal outcome. Due to its subclinical nature, a correct diagnosis depends on retrieval of amniotic fluid. Amniocentesis is, however not performed as a clinical routine in women with PTL because of its invasiveness.

Aim: The aim of this study was to evaluate if cervical length measured by trans-vaginal sonography could assist in the identification of women at high risk for intra-amniotic inflammation.

Methods: Cervical length was assessed by trans-vaginal sonography

in 87 healthy women with singleton pregnancies in PTL (less than 34 weeks of gestation). Cervical (n=87) and amniotic (n=55) fluids were collected. Polymerase chain reaction for *Ureaplasma urealyticum* and *Mycoplasma hominis* and culture for aerobic and anaerobic bacteria were performed. Interleukin (IL)-6 and IL-8 were analysed with enzyme-linked immunosorbent assay.

Results: Intra-amniotic inflammation (IAI) was present in 25/55 (45%) of the women with PTL. The women with IAI had a significantly shorter cervical length (median 10mm; range 0-34mm) than those without IAI (21mm; range 11-43mm) (p<0.0001). Receiver-operator characteristic curves analysis showed that a cervical cut-off length ≤ 15 mm predicted IAI (RR 3.6; CI 1.9-10.0) with a sensitivity 72%, specificity 83%, positive predictive value 78% and negative predicted value of 78%. Cervical length was also significantly associated with preterm birth ≤ 7 days and ≤ 34 weeks.

Conclusions: Cervical length assessed by trans-vaginal ultrasonography predicts intra-amniotic inflammation as well as preterm birth and could thereby be a useful clinical tool in the management of patients in preterm labour.

Op 3

Self administrated measurement of symphysis fundus heights

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Background: Measurements of symphysis-fundus (SF) distance are used to detect small for gestational age pregnancies. Sensitivity for this method is low. To improve the method measurements can be performed more frequent and by the same person. The aim of this study is to evaluate if pregnant women are capable of performing weekly measurements of SF heights by themselves.

Methods: Forty pregnant women from Uppsala were included. They were asked to measure SF heights once a week, four times on every occasion, using blank paper tapes. The midwives made regular SF measurements (opened) and measurements with a blank paper tape (blinded) at the ordinary visits. We compared SF measurements from the pregnant women to measurements done by midwives.

Results: Thirty-three pregnant women (82.5%) completed the study. Ninety-eight percent made four measurements on each occasion. The variation of mean values from measurements by the pregnant women was minor and did not vary with pregnancy length or fetal size. Measurements by the pregnant women showed less variation than the corresponding measurements by the midwives.

Conclusions: Pregnant women are capable of measuring SF heights by themselves.

Op 4

ET-receptors in the uteroplacental vasculature

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Background: Endothelin (ET) is a potent vasoactive peptide suggested to be a regulator of uteroplacental blood flow through the vasoconstrictive ETA receptor and the vasodilative ETB receptor. We have shown a marked endogenous ET dependent vascular constrictive tone in the uteroplacental circulation of pregnant rats that decreases towards term. We hypothesized that this gestational change could be due to an up-regulation of the endothelial, vasodilating, ETB receptor. The aims were to localize and quantify the ETA and ETB receptors in the uterine vasculature of pregnant rats. Furthermore, we investigated the localisations of the receptors in placental bed of normal and preeclamptic human pregnancies.

Methods: Five sections of the uteroplacental arteries were dissected from the uterus of pregnant rats at gestation day 19, 21 or non-pregnant animals and analysed using Western blot and immunohistochemistry (IHC). Placental bed biopsies were obtained from normal term pregnant and preeclamptic women, undergoing caesarean section and analysed with IHC.

Results: ETB receptor protein expression increased significantly in uteroplacental arteries from pregnant rats compared to non-pregnant rats. IHC revealed ETA and ETB receptor labelling of smooth muscle cells and ETB receptor in endothelial cells. In the human placental bed, immunoreactivity for the ETA receptor was predominantly observed in smooth muscle cells. ETB receptor staining was present in trophoblasts, decidual cells, endothelium and smooth muscle cells. No obvious difference was observed in placental bed biopsies of women with preeclampsia as compared to normal pregnancy.

Conclusions: An up-regulation of uteroplacental ETB receptors is likely to be important to allow marked increase in uteroplacental blood flow associated with advancing pregnancy. The localisations of ET receptor subtypes in the human placental bed suggest that ET may also be involved in decidualisation and transformation of spiral arteries.

Op 5

Fetal growth restriction is associated with reduced Fas ligand (FasL) expression on decidual cells

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Background, Objective: Impaired trophoblast invasion and insufficient spiral artery modification may characterise fetal growth

restriction (FGR) and pre-eclampsia (PE). Invasion is regulated by the interaction between extravillous trophoblast (EVT), maternal leukocytes and decidual cells (DC), and Fas/FasL membrane proteins (member of the TNF superfamily) have central roles in balancing fetal/maternal responses. FasL expression at the feto-maternal site may induce apoptosis (death) of activated maternal leukocytes (who express Fas) and thus, promoting trophoblast invasion by killing potential cytotoxic inhibitors. The aim of the present investigation was to study FasL expression in decidual tissues from cases with implantation failure, i.e. women with FGR or/and PE.

Methods: Decidua basalis tissue from pregnancies complicated with FGR and/or PE (n=33) and healthy controls (n = 27) was collected by vacuum aspiration of the placental bed. The proportion of FasL positive EVT and DC was determined by double immunofluorescence.

Results: The proportion of FasL positive DC was significantly lower in FGR than in healthy controls (p=0.001).

Conclusions: FGR is associated with altered immune responses at the feto-maternal interface, as suggested by the reduced proportion of FasL expression in decidual cells. The protective role of FasL is established, but as far as we know, this is the first report on the association between reduced FasL expression in DC and FGR.

Op 6

Standard expected length of human gestation is longer than what you observe

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Background: When the average pregnancy length is calculated in clinical materials the result is biased by censoring and uncertain dating of the start of pregnancy. Censoring is the removal of cases before the event of interest occurs. This is a familiar problem in many research disciplines and is solved by use of time-to-event analysis (survival statistics).

Objective: To assess the standard or expected duration of pregnancy in women with certain dates, applying time-to-event analysis.

Method: Cohort study based on a regional obstetric database. From the background population of 19,823 deliveries, we selected singleton pregnancies without foetal malformations, with agreement within ± 1 day between the expected days of delivery according to ultrasound and according to reliable LMP term. The study population comprised 3,447 pregnancies. We used Kaplan-Meier survival analysis, and we defined delivery after spontaneous onset of labour as event. Elective Caesarean section and delivery following labour induction was treated as censoring.

Results: The observed median gestational length from LMP to the day of delivery was 283 days (mean 280.9, range 135 to 307). With the Kaplan-Meier method we estimated the median duration of gestation to 284 days and the mean duration to 282.5 days. Reanalysis in samples with ± 5 days and 0 days agreement between the two terms gave the same median duration. Neither parity nor smoking had any influence on the estimates.

Conclusion: Standard expected duration of pregnancy counted from LMP is 284 days (median). The rule of Nägele should be adjusted.

Op 7

Sexual experience of partners after total and subtotal hysterectomy

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Background: Hysterectomy is the most common major gynecological procedure. The potential influence on couples sexual life has to be addressed in preoperative consultations in order for women to give informed consent. An ongoing debate is whether there are important differences between abdominal subtotal (SAH) or abdominal total hysterectomy (TAH).

Objective: The aim of this explorative study was to assess if men's sexual experience after hysterectomy changed and if there was a difference between SAH and TAH.

Method: A random sample of patients having undergone SAH(n=60) and TAH(n=60) matched for oophorectomy was selected, based on the register in the operating theatre. Two sets of questionnaires were sent; one for the patient and one for her partner. Of these 51 completed sets were returned (42%). Questions related to general satisfaction with treatment and specific questions about sexuality were addressed.

Results: One third of the partners had not discussed sexuality neither pre- nor postoperatively. Most patients and partners reported increase or no change in frequency of sexual activity after hysterectomy; no difference was observed between the SAH and TAH group. Sexual satisfaction was mostly reported to be the same or improved after the intervention both among women and their partners. Type of operation, age and oophorectomy did not have significant impact. Partners who reported poor sexual satisfaction before the operation were significantly more likely to report poor sexual satisfaction after the operation.

Conclusion: The study shows that for the majority of women and her partner, subtotal or total abdominal hysterectomy does not negatively influence sexuality quantitatively or qualitatively. However, for partners with poor sexual satisfaction, the intervention does less frequently have a positive impact. This question needs to be addressed in preoperative consultations.

Op 8

Pelvic endometriosis occurring in a defined population over twenty years

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Background, Objective: Endometriosis has been estimated to be diagnosed in 2-10% of women during their fertile years, but these figures are mostly derived from pre-selected materials. A nationwide study of all women diagnosed at laparotomy or laparoscopy over a period of 20 years was done to evaluate the incidence/prevalence of endometriosis with special reference to histological verification and to study several factors relating to diagnosis and operative outcome.

Methods: Based on a national diagnostic ICD-code database all hospital records indicating pelvic endometriosis were scrutinized.

Direct inspection of operative theatre records was used for smaller hospitals/private clinics. This was cross-checked against a country-wide pathology database and cases staged by rASRM criteria into stages I-II (minimal-mild) or III-IV (moderate/severe). The main pelvic site and extent of lesions were recorded as well as operative procedures. Prevalence/incidence was calculated against female census figures by age groups.

Results: A total of 1383 women aged 15-49 were diagnosed with the disease, by laparoscopy in over half. The overall incidence was 2.12% and for histologically verified cases 1.24%. Almost a third lost their uterus and/or one or both ovaries. Histological verification was available in 811 cases and 508 had stage II-IV, reflecting severity when operation was resorted to. Mean age at diagnosis was 35 years and women had 1-9 operative procedures (mean 1.5) for diagnosis and attempted treatment. The rate of histological verification remained unchanged over time.

Conclusions: The incidence of endometriosis has not before been evaluated in for a complete and homogenous population with good and accessible record-keeping and using a dual pathway for information gathering. One in 50 women developed a disease in their reproductive years that often led to repeated invasive procedures and removal of internal genitalia.

Op 9

A population-based prospective study of the association between hysterectomy and cardiovascular disease. The HUNT study

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Background: The few prospective studies that have examined an etiological relation between hysterectomy and cardiovascular diseases [myocardial infarction, angina pectoris, stroke, treated/untreated hypertension (CVD)] have come to mixed results. This study examines the relation in a prospective case-control design based on a population study from Norway.

Methods: All inhabitants aged ≥ 20 years in Nord-Trøndelag County were invited to cross-sectional studies in 1984 (HUNT-1) and 1995 (HUNT-2). During 12 years between the surveys, 311 women aged 30-52 years without any signs of CVD at HUNT-1, reported hysterectomy with preserved ovaries. Each case had 8 controls drawn out matched on age, BMI, education, and blood pressure levels, and smoking status (N=2,488). At HUNT-2 the groups were compared for prevalence of CVD.

Results: After a mean observation time of 6.3 years (SD3.1), the total CVD prevalence was 60% among cases and 62% among controls (p=0.58). The distribution of CVD diagnoses were: myocardial infarction 0.3% versus 0.9%, (p=0.30), angina 2% versus 1% (p=0.39), stroke 0.3% versus 0.7% (p=0.45), treated hypertension 9% versus 8% (p=0.50), untreated hypertension 56% versus 58% (p=0.48), in the case and control group respectively.

Conclusion: In this prospective population-based case control study with matching on five established CVD risk factors, we found that hysterectomy with ovarian preservation was unrelated to any increased prevalence of CVD during a mean of 6.3 years observation

time. Our study therefore supports studies like the Women's Health Initiative in the conclusion that such hysterectomies do not increase the risk of CVD within a certain observation period.

Op 10

Different roles for the nerve growth factor receptors TrkA and p75 in ovarian neoplasia

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Background: Overexpression of growth factor receptors, such as tyrosine kinase receptors, provides cancer cells with the ability to override normal cell growth regulatory mechanisms. The biological effect of nerve growth factor (NGF) is mediated through the effects of two receptors, p75 (low affinity) and tyrosine kinase receptor TrkA (high affinity). The phosphorylation of TrkA and p75 activates the intracellular mitogen activated protein kinase pathway (MAPK) in vitro. Expression of activated p-TrkA receptor predicts poor survival in clinical advanced-stage ovarian carcinoma.

Objective: To compare the expression of p-TrkA and p75 in ovarian borderline tumors and FIGO Stage I carcinomas and advanced-stage (FIGO stage III-IV) carcinomas. In addition, to assess a possible association between NGF receptor expression and MAPK activation in borderline and FIGO stage I carcinomas.

Methods: Sections from 50 borderline tumors, 50 FIGO stage I invasive ovarian carcinomas and 56 advanced-stage carcinomas were evaluated for expression of the TrkA, p75 and MAPK using immunohistochemistry.

Results: p-TrkA membrane expression was significantly higher in advanced-stage carcinomas compared to both borderline and stage I carcinomas ($p < 0.001$). P75 membrane expression was comparable for the three groups ($p > 0.05$). MAPK activation was comparable in borderline and stage I carcinomas.

Conclusions: Expression of biologically active p-TrkA receptor at the cell membrane is upregulated along tumor progression in advanced ovarian carcinoma, while p75 expression remains unaltered. These data provide further proof regarding the biological role of p-TrkA in ovarian carcinoma.

Op 11

Incidence of vaginal erosion after tension-free vaginal tape and intravaginal slingplasty

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Background: Tension-free vaginal tape (TVT) and intravaginal slingplasty (IVS) are mini-invasive operations widely used for treating female stress urinary incontinence. A problem of defective vaginal healing after IVS has recently been described in a few studies.

Objective: Our study aimed to compare the incidence of vaginal ero-

sions after TVT and IVS operations.

Methods: We performed a retrospective review of 403 patients who were treated for female urinary incontinence between January 2000 and June 2004 in our hospital. 293 patients underwent TVT operation and 80 patients IVS operation. There were no statistically significant differences in patient age, BMI and medical history. We focused our special interest on late postoperative complications, especially vaginal erosions.

Results: Three patients (1 %) in the TVT group and 13 patients (16 %) in the IVS group had symptomatic erosion ($p < 0.001$, RR 13.7). The median time to presenting symptoms was 9 months in the TVT group and 11,5 months in the IVS group.

Conclusions: The incidence of vaginal erosion is markedly higher after IVS than after TVT procedure. TVT tape is polypropylene monofilament and IVS tape is polypropylene multifilament. We suggest that the high erosion rate in the IVS group is associated with the tape material.

Op 12

Pelvic floor sex steroid hormone receptors in stress urinary incontinent women

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Background: Although estrogen is used for prevention and treatment of stress urinary incontinence (SUI), there is little knowledge of hormonal effects in the supporting pelvic floor extracellular matrix.

Objective: To identify pelvic floor extracellular matrix sex steroid hormone receptor isoforms in women with different menstrual status with and without SUI.

Methods: From four pre-menopausal and seven post-menopausal women paraurethral punch biopsies of connective tissue were obtained during surgery for SUI. Five pre-menopausal and five post-menopausal without SUI served as controls. By immunohistochemistry estrogen receptors (ER)- α and β , the progesterone receptors (PR)A+B and B and the androgen receptor (AR) were identified and manually scored. The ER- α and ER- β positive nuclei were quantified using image analysis.

Results: Receptor-positive nuclei were found for all sex steroid hormones in all groups. ER- α , PR A+B and AR were more expressed than ER- β and PR B. By manual scoring there was a slight decrease of PR A+B in both post-menopausal groups. The highest expression of AR was seen among the post-menopausal controls. A significantly higher amount of ER- β positive nuclei, $p = 0,01$, was found in the pre-menopausal SUI-group compared to matched controls, using image analysis.

Conclusion: All known sex steroid hormone receptor isoforms including the androgen receptor are present in the para-urethral ECM. This confirms that the pelvic floor is a target for sex steroid hormones. The difference in ER- β positive nuclei between SUI women and controls in the pre-menopausal group may indicate a difference in the cellular response to estrogen. The semi-quantitative manual scoring is not conclusive, but a lower amount of AR in the post menopausal SUI group could reflect a less anabolic situation. In our on-going sex hormone receptor study using RT-PCR technique for quantification, we are investigating this further.