

(22-28 wks and 28-32 wks). No significant changes were demonstrated in the PTD rate before 30, 32 or 34 wks. However, women who received progesterone had less PTD before 30 wks (admission before 27 wks) and less PTD before 32 wks (admission after 28 wks) but it did not reach a statistical significance. Importantly, 6 women in the study group compared to 1 in the control group had intrahepatic cholestasis with documentation of elevated serum total bile acid levels.

Table 1

	GA at admission 22-27 (wks)		GA at admission 28-32 (wks)	
	Study Group	Control Group	Study Group	Control Group
	n=11	n=16	n=14	n=19
Mean GA at admission (wks)	24.9±2.6	25.5±1.6 *	29.2±0.6	28.8±0.8 *
Initial cervical length (mm)	16.6±4.4	16.8±5.5 *	18.6±3.7	17.6±4.5 *
GA at birth (wks)	33.7±3.2	34±4 *	35.2±1.8	34±2.0 *
PTD<30 wks	1 (9%)	4 (25%) *		
PTD<32 wks	3 (27%)	4 (25%) *	2 (15%)	5 (26%) *
PTD<34 wks	5 (46%)	5 (32%) *	5 (38%)	7 (36%) *

GA=Gestational age, PTD=preterm delivery, * study group compared to control-not significant

Conclusion: Although the sample size is small we have shown that treatment with progesterone did not bring a significant advantage to women with twin pregnancy and short cervix. Importantly, liver functions should be monitored carefully among pregnant women who receive progesterone.

535

“Tamponade Test” in the Management of Massive Postpartum Hemorrhage: The Use of the Rüşch Balloon. Antonio Ragusa,¹ Denise E Rinaldo,¹ Mona Mansour,¹ Salvatore Garsia,¹ Michele Nichelatti.² ¹Obstetric and Gynecology, Niguarda Ca' Granda Hospital, Milan, Italy; ²Statistics, Niguarda Ca' Granda Hospital, Milan, Italy.

Introduction: Postpartum hemorrhage (PPH), leading cause of maternal death worldwide accounts for 30% of cases of global maternal mortality. PPH is largely preventable and prevention depends on timely medical intervention. Failure to control bleeding with medical conservative treatment prompts surgical exploration, which might even require hysterectomy. Alternative procedures should be considered when medical interventions have not been effective and before considering surgical options.

Objective: Evaluation of the efficacy of urologic hydrostatic balloon catheter (Rusch catheter) use as a tamponade test, for severe PPH not controlled by medical measures.

Methods: prospective non randomized controlled trial. We enrolled 6881 women who delivered in our Obstetric Department from 2001 to 2004 among which we identified 120 cases of severe PPH. Patients were managed according to our current protocols. The 20 patients with uterine atony in whom medical treatment failed, were divided into 2 groups of 10 patients each. In Group A physicians weren't able to use the tamponade test and in group B they had been trained to its use.

Results: Group A: 3 patients had hysterectomy and 2 had B-lynch suture; they had more blood loss and more blood transfusions. Group B: all patients had bleeding stopped within 30 minutes and no patient needed any surgical intervention (p 0.033). The length of hospital admission was significantly shorter in group B (p 0.0313). The haematologic complications (DIC) and the number of infections (pyrexia with T > or = 38° C) were comparable in both groups.

Conclusions: Rüşch catheter used as tamponade test can control severe intractable PPH quickly and effectively, is simple to use, requires short time for application, it is cost-effective, safe and can avoid highly traumatic surgical intervention to many patients. Tamponade techniques should become an important skill of any obstetrician and an integral part of all obstetric emergency protocols: after this study all doctors in our department have been trained to use Rüşch catheter. After failure of medical treatment, and before proceeding to any surgical intervention either conservative or demolitive, attempting to stop bleeding via tamponade test is a reasonable option for PPH management after excluding retained tissue and traumatic causes of haemorrhage.

536

Increased Maternal Peripheral White Blood Cell Count Is a Marker of Active Human Labor. Oksana Shynlova,¹ Craig Pennell,⁴ Wendy Whittle,^{1,2} Stephen Lye.^{1,2,3} ¹Samuel Lunenfeld Res Institute, Mt Sinai Hosp, Toronto, ON, Canada; ²Ob/Gyn, University of Toronto, Toronto, ON, Canada; ³Physiology, University of Toronto, Toronto, ON, Canada; ⁴School of Women's and Infants' Health, University of Western Australia, Perth, Australia.

Introduction: Early studies of leukocyte levels in maternal peripheral blood showed a pronounced increase in the total white blood cell (WBC) counts

following spontaneous delivery as compared to elective caesarean delivery prior to labor. We hypothesized that peripheral WBC might be good predictors of preterm and term human labour.

Objective: To study an association between WBC counts and labor as well as to determine the leukocyte subpopulations that are activated during term and preterm labor.

Methods: The association between elevated total WBC counts and labor was studied for both preterm and term patients at Mount Sinai Hospital, Toronto.

Results: Total WBC numbers (10⁹/L) collected from patients with uncomplicated term labor were significantly higher (mean 12.0, range 4.43-18.27, n=72) than in uncomplicated term patients presenting for elective delivery by cesarean section in the absence of labor (mean 8.1, range 6.61-10.11, n=21). Total WBC (area under receiver-operator curve [ROC] 0.87) and neutrophil counts (area under ROC 0.89) were both excellent predictors of labour. The optimum threshold for prediction of labour at term was a total WBC of 9.14: sensitivity 74%, specificity 91%, positive likelihood ratio of 7.73, negative likelihood ratio 0.29. Moreover, WBC was significantly higher (p<0.001) in patients with the clinical diagnosis of PTL (but no indication of any infective process) with a mean value of 13.22 (range 7.89-24.05, n=24) as compared to age-matched pregnant controls, where the mean value was 8.5 (range 5.17-12.19, n=27). When individual sub-types of leukocytes were compared, we found a highly significant increase (p<0.001) in neutrophil number (and to a lesser extent monocytes) in PTL patients as compared with age-matched pregnant controls that mirrored the changes in total WBC counts, suggesting that these subpopulations of leukocytes were largely responsible for the WBC changes. There were no changes in the numbers of lymphocytes, eosinophils, and basophils in any of the groups.

Conclusion: These data suggest that total WBC may be a marker of active labor irrespective of gestational age. We speculate that these WBCs contribute to the process of labour.

537

Endocervical Biomarkers at the Time of Rescue Cerclage and Pregnancy Outcome. Daniel W Skupski,^{1,2} Catherine Herway,^{1,2} Ann Marie Bongiovanni,¹ Steven S Witkin.¹ ¹Obstetrics and Gynecology, Weill Cornell Medical Center, New York, NY, USA; ²Obstetrics and Gynecology, New York Hospital Queens, Flushing, NY, USA; ³New York Hospital Queens.

Objective Predicting which women will benefit from placement of a rescue cerclage remains elusive. We hypothesized that the concentration of compounds involved in cervical remodeling would provide an indication of subsequent outcome. Hyaluronan (HA) is a carbohydrate component of the extracellular matrix whose concentration is altered during cervical ripening. 27 kDa heat shock protein (hsp27) promotes actin polymerization and smooth muscle contraction. Interleukin (IL)-8 induces the chemotaxis of neutrophils that aid in the breakdown of the cervical extracellular matrix at parturition.

Methods Endocervical samples were obtained with a cotton swab from 40 women at the time of placement of a rescue cerclage (15.4 – 25.0 weeks of gestation). Samples were frozen and assayed for concentrations of HA, hsp27 and IL-8 by ELISA without knowledge of clinical outcomes. All patients had a cervical length < 1.5 cm by endovaginal ultrasound, no evidence of uterine contractions, no fever, no uterine tenderness and intact membranes and a modified Shirodkar cerclage technique.

Results Endocervical concentrations of HA and hsp27 at the time of cerclage were correlated with pregnancy outcome. Median HA levels were 14.3 ng/ml in the 13 women who delivered at <37 weeks gestation and 45.1 ng/ml in those who delivered at 37-41 weeks (P = .02). Median hsp27 levels were 7.2 pg/ml in the preterm patients and 40.6 pg/ml in women with a term delivery (P = .03). The cervical concentrations of IL-8 were very similar in both groups (5.4-5.5 ng/ml). Median cervical concentrations of HA (38.1 vs. 5.8 ng/ml, P = .01) and hsp27 (33.2 vs. 6.8 pg/ml, P = .04) were also lower in those cases where the newborn was referred to the neonatal intensive care unit. Cervical concentrations of HA and hsp27 were highly correlated (Spearman r = .5652, P = .002). There were no associations between HA or hsp27 level and prior cerclage, time of cerclage placement, prior 2nd trimester loss, maternal age or parity or neonatal gender.

Conclusion Higher endocervical concentrations of HA and hsp27 at the time of a rescue cerclage were associated with a more favorable outcome. These findings may represent the level of cervical ripening and thus are predictive of outcome, and may aid in the selection of women who are most likely to benefit from cerclage.