5 **FIRST AND SECOND TRIMESTER EVALUATION OF RISK (FASTER) TRIAL: THE ROLE OF SECOND TRIMESTER GENETIC SONOGRAPHY** FERGAL MALONE[1], DAVID A. NYBERG[2], JOHN VIDAVER[3], ROBERT BALL[4], CHRISTINE H. COMSTOCK[5], GEORGE SAADE[6], RICHARD BERKOWITZ[7], SUSAN GROSS[8], LORRAINE DUGOFF[9], SABRINA CRAIGO[10], ILAN E. TIMOR[11], STEPHEN R. CARR[12], HONOR M. WOLFE[13], JACOB CANICK[12], MARY E. D'ALTON[1], [1]Columbia University, New York, New York, [2]Swedish Medical Center, Seattle, Washington, [3]DM-STAT, Boston, Massachusetts, [4]University of Utah, Salt Lake City, Utah, [5]William Beaumont Hospital, Royal Oak, Michigan, [6]UTMB, Galveston, Texas, [7]Mount Sinai School of Medicine, New York, New York, [8]Montefiore Medical Center, Bronx, New York, [9]University of Colorado, Denver, Colorado, [10]Tufts University, Boston, Massachusetts, [11]NYU, New York, New York, [12]Brown University, Providence, Rhode Island, [13]UNC, Chapel Hill, North Carolina

OBJECTIVE: To evaluate the role of 2nd trimester genetic sonography in a population that has already undergone 1st trimester Combined screening and 2nd trimester Quad screening.

STUDY DESIGN: Unselected singleton pregnancies at 15 centers had 1st trimester Combined screening at 10-13 wks (nuchal translucency, PAPP-A, fbhCG), and 2nd trimester Quad screening at 15-18 wks (AFP, hCG, uE3, inhibin-A). Patients remaining at their local FASTER site for antenatal care also had a detailed genetic sonogram at 15 to 23 wks, to evaluate for major structural fetal anomalies and minor markers for aneuploidy.

RESULTS: 8,533 patients had detailed 2nd trimester genetic sonography, including 62 cases of Trisomy-21. 1st trimester combined screen detected 84% (52/62) of T-21 (6.6% FPR); 2nd trimester Quad screen detected 88% (53/60) (11% FPR). In the 3 T-21 cases undetected by these screens, multiple markers were detected in 2 and a major cardiac defect in 1, so that no T-21 were missed by the overall screening program. Use of likelihood ratios (LR) from the genetic sonogram to modify the risk of screening tests, resulted in higher detection rates for both 1st and 2nd trimester screens (92% and 93% respectively), and reduced the FPRs to 5.6% and 7.4% respectively.

CONCLUSION: The use of likelihood ratios from 2nd trimester genetic sonography improves the performance of 1st and 2nd trimester screens, by significantly reducing the FPR with further increases in detection rates.

Marker	Sensitivity	FPR	LR	95% CI
Major anomaly	18% (11/62)	1.3%	14	7.5-23.4
Nuchal fold >5	37% (11/30)	3.5%	11	6.5-17.3
Echogenic bowel	14% (8/58)	0.5%	28	14.2-59.5
Short femur	24% (14/59)	2.8%	8.5	5.2-13.5
Short humerus	7.4% (2/27)	1.2%	6.2	1.6-24.3
Echogenic focus	27% (15/56)	4.6%	5.8	3.8-9.1
Pyelectasis	6.9% (4/58)	1.2%	5.8	2.3-15.8
1 or more markers	59% (36/61)	11%	5.5	4.5-6.9
2 or more markers	26% (16/61)	1.0%	26	15.9-40.8
3 or more markers	6.6% (4/61)	0.1%	73	21.5-224
No markers	34% (21/62)	89%	0.4	0.27-0.54

6 **PROTEOMIC BIOMARKER SETS IDENTIFY SYNERGISTIC PATHWAYS THAT PREDICT THE OUTCOME OF RESCUE CERCLAGE (RC)** CARL P. WEINER[1], KEUN-YOUNG LEE[2], CATALIN BUHIMSCHI[3], ROB CHRISTNER[4], IRINA BUHIMSCHI[5], [1]University of Maryland at Baltimore, Physiology, Baltimore, Maryland, [2]Kangnam Sacred Heart Hospital, Ob/Gyn, Seoul, South Korea, [3]Yale University, OB GYN, New Haven, Connecticut, [4]Ciphergen Biosystems, New Haven, Connecticut, [5]Yale University, Obstetrics/Gynecology, New Haven, Connecticut

OBJECTIVE: The origin of incompetent cervix is multifactorial, and the success of RC unpredictable. Intra-amniotic inflammation complicates 25% of pregnancies undergoing RC, and its presence predicts failure. An intra-amniotic proteomic inflammatory profile was described by SELDI (mass restricted: MR Score). We report here a new independent biomarker predictive of cerclage failure whose impact is synergistic with a + MR.

STUDY DESIGN: Amniocentesis was performed to facilitate RC in 37 consecutive women with painless dilation (>2 cm) and no detectable uterine activity. 39 consecutive women with a sonographically normal pregnancy and cervix undergoing amniocentesis for chromosome testing provided control. A proteomic fingerprint was generated using SELDI on the discarded fluid. Peaks were sought for the 4 proteins of the MR Score (inflammation) and for hemoglobin (Hb) as evidence of decidual hemorrhage/intra-amniotic bleeding.

RESULTS: Amniocentesis was performed at 23.5w in cerclage (mean dilation 4cm) vs.19.5w in control subjects. Cerclage women delivered at 28.8w, controls at 39.2w. Thirty two of 37 (86%) cerclage subjects delivered prematurely. Hb peaks were present in 12 of 37 (30%) cerclage but in no control subjects. Women with Hb peaks delivered earlier than those without (latency: − Hb: median 38 d, range 0-148 d vs. + Hb: median 6 d, range 0-100 d, $P < .04$; % prolongation: − Hb: median 21.8%, range 0.7-117% vs. + Hb: median 3.8%, range 0-57%, $P = .03$). There was no relationship between cervical dilation and presence of Hb. **Women with a − MR and no Hb had a median latency of 40.5 d (range 1-148 d) vs. those with either a + MR or + Hb (but not both) whose latency was 14 d (range 0-105 d) vs. those with both a + MR and + Hb whose latency was 3 d (range 0-43 d).**

CONCLUSION: These findings illustrate a second pathologic mechanism, presumably decidual bleeding which like inflammation is associated with cervical ripening independent of uterine contractions. The negative controls demonstrate the bleeding occurs pre cerclage. The presence of either predicts cerclage failure with synergism.

7 **AN INTERNATIONAL RANDOMIZED CONTROLLED TRIAL OF AMNIOINFUSION FOR THICKLY MECONIUM STAINED AMNIOTIC FLUID** WILLIAM FRASER[1], JUSTUS HOFMEYR[2], ROBERTO LEDE[3], GILLES FARON[4], SOPHIE ALEXANDER[5], FRANÇOIS GOFFINET[6], ARNE OHLSSON[7], CÉLINE GOULET[8], LUCILE TURCOT-LEMAY[9], CHANTAL ROY[1], STAVROS PETROU[10], HAI-RONG XU[1], BIN WEI[1], SYLVIE MARCOUX[11], THE AMNIOINFUSION TRIAL GROUP[12], [1]Universite de Montreal, Obstetrics & Gynecology, Montréal, Quebec, Canada, [2]University of Witwatersrand, Obstetrics & Gynecology, East London, South Africa, South Africa, [3]Instituto Argentino de Medicina Basada en las Evidencias, Buenos Aires, Argentina, Argentina, [4]Centre hospitalier universitaire Brugmann, Obstétrique & Gynécologie, Brussells, Belgium, Belgium, [5]Université libre de Bruxelles, Brussells, Belgium, Belgium, [6]AP-HP Cochin Port-Royal, Obstetrics, Paris, France, France, [7]Mount Sinai Hospital, Pediatrics, Toronto, Ontario, Canada, [8]Universite de Montreal, Nursing, Montreal, Quebec, Canada, [9]Universite Laval, Québec, Quebec, Canada, [10]National Perinatal Epidemiology Unit, Oxford, UK, United Kingdom, [11]Universite Laval, Médecine sociale et préventive, Québec, Quebec, Canada, [12]International collaboration, Obstetrics & Gynecology, Montréal, Quebec, Canada

OBJECTIVE: To determine if amnioinfusion (AI) for thickly meconium stained amniotic fluid reduces (1) perinatal death and/or moderate to severe meconium aspiration syndrome (primary outcome measure), (2) cesarean section, (3) other indicators of serious neonatal and maternal morbidity.

STUDY DESIGN: In 56 centres in 13 countries, 1998 laboring women at ≥36 weeks gestation with thickly meconium stained liquor were stratified according to the presence or absence of variable fetal heart rate decelerations and randomized either to standard care or to AI, consisting of a transcervical bolus of 800 mL saline over 40 minutes, followed by infusion of 2 mL/minute to a maximum of 1500 mL. The composite primary outcome measure included perinatal death and/or severe or moderate meconium aspiration syndrome (MAS) based on clinical respiratory distress (severe: requiring mechanical ventilation; moderate: requiring oxygen supplementation at a $FiO_2 \geq 40\%$ or of ≥48 hours duration) as blindly adjudicated by a group of 3 neonatologists.

RESULTS: Perinatal death and/or moderate or severe MAS occurred in 44 (4.5%) babies in the amnioinfusion group and 34 (3.4%) babies in the control group (RR = 1.3, 95% CI = 0.8-2.0). There was a trend toward more frequent cesarean delivery in the AI group (32% vs 29%; RR = 1.1; 95% CI 1.0-1.3). The distribution of other indicators of severe neonatal morbidity including arterial cord pH < 7.05 and severe maternal morbidity were similar in the two treatment groups. We found no evidence of heterogeneity of treatment effect, either across stratum as defined above, or across centres.

CONCLUSION: For women in labor with thickly meconium stained amniotic fluid, amnioinfusion does not reduce the risk of meconium aspiration syndrome, cesarean delivery, or other major indicators of maternal or neonatal morbidity.

8 **NUCHAL TRANSLUCENCY AND THE RISK OF CONGENITAL HEART DISEASE—A POPULATION-BASED SCREENING STUDY (THE FASTER TRIAL)** LYNN L. SIMPSON[1], FERGAL MALONE[1], DIANA BIANCHI[2], ROBERT BALL[3], DAVID NYBERG[4], CHRISTINE H. COMSTOCK[5], GEORGE SAADE[6], RICHARD BERKOWITZ[7], SUSAN GROSS[8], LORRAINE DUGOFF[9], SABRINA CRAIGO[2], ILAN TIMOR[10], STEPHEN CARR[11], HONOR WOLFE[12], TARA TRIPP[13], MARY D'ALTON[1], [1]Columbia University, New York, New York, [2]Tufts University, Boston, Massachusetts, [3]University of Utah, Obstetrics and Gynecology, Salt Lake City, Utah, [4]Swedish Medical Center, Seattle, Washington, [5]William Beaumont Hospital, Royal Oak, Michigan, [6]University of Texas Medical Branch at Galveston, Galveston, Texas, [7]Mount Sinai Medical Center, Department of Obstetrics and Gynecology, New York, New York, [8]Albert Einstein College of Medicine, Bronx, New York, [9]University of Colorado Health Sciences Center, Denver, Colorado, [10]New York University, New York, New York, [11]Brown University, Providence, Rhode Island, [12]University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, [13]DM-STAT, Boston, Massachusetts

OBJECTIVE: To determine whether first trimester nuchal translucency (NT) measurement is a useful screening tool for major congenital heart disease (CHD) in the absence of aneuploidy.

STUDY DESIGN: Unselected patients with singleton pregnancies at 10 3/7 to 13 6/7 weeks were recruited at 15 US centers to undergo NT screening. Pregnancy and pediatric outcomes were recorded and medical records review performed on all cases of suspected CHD. Cases with aneuploidy were excluded from the analysis. Major CHD included defects known to have poor perinatal outcomes or ductal dependency after birth. The sensitivity, specificity, and positive and negative predictive values of NT measurements in the detection of major CHD were determined using different cut-offs (≥2.0 MoM, ≥2.5 MoM, ≥3.0 MoM). Odds ratios (95% CI) were calculated for the different cut-offs and P value < .05 was considered significant.

RESULTS: 33,968 patient records with cardiac outcome data were available for this analysis. Overall, there were 195 cases of CHD (incidence 5.7/1000), of which 43 (22.1%) were major (incidence 1.3/1000). Of the 43 major defects, 35 (81.4%) occurred in patients with NT < 2.0 MoM. The incidence of major CHD increased with increasing NT MoMs as listed in Table I. Table II lists the screening properties, OR, and 95% CI of different NT MoMs cut-offs for major CHD.

CONCLUSION: NT assessment in the first trimester lacks the characteristics of a good screening tool for major CHD in a large, unselected population. However, NT ≥ 2.0MoM is a marker for major CHD and warrants referral for fetal echocardiography.

Table I Incidence of Major CHD

NT	N	Major CHD	Incidence
<2.0 MoM	33,429	35	1.0/1000
≥2.0 MoM	539	8	14.8/1000
≥2.5 MoM	191	7	36.6/1000
≥3.0 MoM	91	5	54.9/1000