

**284 PERINATAL OUTCOME OF MACROSOMIC FETUSES ACCORDING TO THE MODE OF DELIVERY** LUIGI RAIÒ<sup>1</sup>, FABIO GHEZZI<sup>2</sup>, EDOARDO DI NARO<sup>3</sup>, MASSIMO FRANCHI<sup>2</sup>, MARCO BUTTARELLI<sup>2</sup>, FRISCILLA MANTEGAZZA<sup>2</sup>, HERMAN BRUHWILER<sup>4</sup>, HENNING SCHNEIDER<sup>5</sup>; <sup>1</sup>University of Bern, Bern; <sup>2</sup>University of Insubria, Obstetrics and Gynecology, Varese; <sup>3</sup>University of Bari, Obstetrics or Gynecology, Bari; <sup>4</sup>Kantonsspital Munsterlingen, Obstetrics and Gynecology, Munsterlingen; <sup>5</sup>University of Bern, Obstetrics and Gynecology, Bern

**OBJECTIVE:** To determine the prevalence of severe neonatal complications in healthy term macrosomic infants according to the mode of the delivery.

**STUDY DESIGN:** Using the database of the Swiss Obstetric study group (AFS), perinatal information of 284,641 women who delivered during a 10-year period were analyzed. After the exclusion of cases with factors that may have affected the health of the neonate, patient characteristics of macrosomic infants (>4500 gr) delivered vaginally were compared to those of infants delivered by cesarean section (CS).

**RESULTS:** During the study period, 3356 macrosomic fetuses in vertex presentation were registered in the database. Of these, 2639 were delivered vaginally (group 1) and 717 were delivered by CS (group 2). In comparison to group 2, group 1 had a higher rate of brachial plexus injuries (3.6% vs 0%,  $P < .001$ ) and clavicle fracture (4% vs 0.3%  $P < .001$ ). Although not significant, the proportion of intra- and postpartum neonatal mortality was higher in group 1 than in group 2 (9 cases vs 0 cases). To demonstrate such a difference [power 80%, ( $\alpha = 0.05$ )] 6700 cases would be necessary. The 9 cases of neonatal mortality did not occur in diabetic mothers. No difference was present between groups in admission to NICU or long term O<sub>2</sub> administration. In group 1, 310 cases (group 1a) of shoulder dystocia occurred. Of these, 58 fetuses had brachial plexus injuries. In comparison to patients in group 1 who did not have shoulder dystocia (group 1b), the proportions of birth weight >4750 gr, patient's height <166 cm, diabetes, gestational diabetes, clavicle fracture, and operative delivery were higher in group 1a. After adjustment for confounding variable, patient's height (OR = 1.9), diabetes (OR = 3.3), and birthweight (OR = 2.1) remained a predictor ( $P < .05$ ) of shoulder dystocia.

**CONCLUSION:** Since some of these risk factors are known prior to delivery, patients whose fetus weight is suspected to be greater than 4750 gr should be counseled on the higher risks of vaginal delivery.

**286 MATERNAL MORTALITY AT AN INNER-CITY HOSPITAL, 1949-2000** ELEANOR HO<sup>1</sup>, JO-ANN BROWN<sup>2</sup>, WILLIAM GRAVES<sup>3</sup>, MICHAEL LINDSAY<sup>4</sup>; <sup>1</sup>Emory University, Gynecology and Obstetrics, Atlanta, GA; <sup>2</sup>Grady Memorial Hospital, Atlanta, GA; <sup>3</sup>Emory University, Gynecology & Obstetrics, Atlanta, GA; <sup>4</sup>Emory University, Atlanta, GA

**OBJECTIVE:** To determine the rates and causes of maternal deaths at an inner-city hospital from 1949 through 2000.

**STUDY DESIGN:** All maternal deaths recorded at the hospital occurring from January 1949 through December 2000 were included. Death summaries and autopsy reports were reviewed. Mortality rates and causes of death were compared for the periods 1949-1971 and 1972-2000. The chi-square test was used to test the relationship between time, classification and cause of death.

**RESULTS:** During the study period, 290 maternal deaths and 314,436 live births were recorded, for a maternal mortality rate of 92.2 per 100,000. There was an increase in the percentage of deaths indirectly related to pregnancy and unrelated to pregnancy and a decrease in the percentage of deaths directly related to pregnancy ( $P < .05$ ). This is attributable to a decrease in deaths from obstetrical infections and hemorrhage and an increase in deaths from non-obstetrical infections, vascular disease and homicide ( $P < .05$ ).

**CONCLUSION:** The major causes of maternal mortality in our hospital have changed. Better understanding of these causes may lead to more effective prevention efforts.

**Table**

**Maternal mortality rates**

| STUDY PERIOD | MATERNAL DEATHS | LIVE BIRTHS | MORTALITY RATE PER 100,000 |
|--------------|-----------------|-------------|----------------------------|
| 1949-1971    | 165             | 143,377     | 115.1                      |
| 1972-2000    | 125             | 171,059     | 73.1                       |
| 1949-2000    | 290             | 314,436     | 92.2                       |

**Maternal mortalities by classification**

| CLASSIFICATION OF DEATH | 1949-1971 (N = 165) | 1972-2000 (N = 125) | P VALUE |
|-------------------------|---------------------|---------------------|---------|
| Direct                  | 101 (61%)           | 45 (35%)            | <.001   |
| Indirect                | 31 (19%)            | 32 (25%)            |         |
| Unrelated               | 29 (18%)            | 51 (40%)            |         |

**Maternal mortalities by cause**

| CAUSE OF DEATH           | 1949-1971 (N = 165) | 1972-2000 (N = 125) | P VALUE |
|--------------------------|---------------------|---------------------|---------|
| Infection                | 36 (22%)            | 7 (6%)              | <.001   |
| Hemorrhage               | 21 (13%)            | 8 (6%)              |         |
| Preeclampsia             | 21 (13%)            | 16 (13%)            |         |
| Non-obstetric infections | 3 (2%)              | 10 (8%)             |         |
| Vascular disease         | 1 (<1%)             | 12 (10%)            |         |
| Homicide                 | 3 (2%)              | 15 (12%)            |         |

**285 THE IMPACT OF MULTIPLE GESTATION ON NICU ADMISSION AND LENGTH OF STAY IN WOMEN WITH PRETERM LABOR AND DELIVERY** JOHN R. BARTON<sup>1</sup>, JOHN O'BRIEN<sup>1</sup>, DOUGLAS MILLIGAN<sup>1</sup>, DEBBIE JACQUES<sup>2</sup>, NIKI ISTWAN<sup>2</sup>, BAHBA SIBAI<sup>3</sup>; <sup>1</sup>Perinatal Diagnostic Center, Lexington, KY; <sup>2</sup>Matria Healthcare, Clinical Research Dept., Marietta, GA; <sup>3</sup>University of Cincinnati, Dept. of Ob/Gyn, Cincinnati, OH

**OBJECTIVE:** To compare the rate of NICU admission (ADM) and length of stay (LOS) among infants of singleton, twin, and triplet gestations stratified by gestational age (GA) at delivery.

**STUDY DESIGN:** 9415 infants of singleton, twin, and triplet pregnancies with delivery weeks 33-36 (triplet vs. twin infants, common odds ratio 2.5, 95% confidence interval 2.0, 3.1; twin vs. singleton 1.5 [1.4, 1.7]). Rate of NICU admission and LOS (mean  $\pm$ SD) stratified by GA at delivery are presented in the Table below.

**RESULTS:** Odds of NICU ADM increased significantly with fetal number for delivery weeks 33-36 (triplet vs. twin infants, common odds ratio 2.5, 95% confidence interval 2.0, 3.1; twin vs. singleton 1.5 [1.4, 1.7]). Rate of NICU admission and LOS (mean  $\pm$ SD) stratified by GA at delivery are presented in the Table below.

**CONCLUSION:** The risk of NICU ADM increases significantly with fetal number, for each week of delivery (33-36). Each additional infant in utero also results in significantly longer NICU LOS.

**Table**

|          | SINGLETON       | TWIN            | TRIPLET         | P VALUE |
|----------|-----------------|-----------------|-----------------|---------|
| NICU 31w | 93.0%           | 94.3%           | 98.0%           | .108    |
| LOS, d   | 24.9 $\pm$ 13.3 | 26.6 $\pm$ 10.8 | 29.1 $\pm$ 14.2 | <.001   |
| NICU 32w | 88.5%           | 92.5%           | 94.6%           | .038    |
| LOS, d   | 18.3 $\pm$ 12.1 | 20.0 $\pm$ 10.0 | 22.9 $\pm$ 10.3 | <.001   |
| NICU 33w | 77.8%           | 85.5%           | 94.6%           | <.001   |
| LOS, d   | 13.5 $\pm$ 11.5 | 14.8 $\pm$ 8.1  | 15.2 $\pm$ 7.4  | <.001   |
| NICU 34w | 57.5%           | 69.5%           | 83.8%           | <.001   |
| LOS, d   | 8.8 $\pm$ 7.3   | 10.4 $\pm$ 6.3  | 11.6 $\pm$ 7.0  | <.001   |
| NICU 35w | 28.9%           | 39.6%           | 59.7%           | <.001   |
| LOS, d   | 7.7 $\pm$ 8.6   | 8.7 $\pm$ 9.2   | 9.3 $\pm$ 10.3  | <.001   |
| NICU 36w | 16.0%           | 20.4%           | 43.1%           | <.001   |
| LOS, d   | 6.5 $\pm$ 7.6   | 7.3 $\pm$ 8.0   | 10.3 $\pm$ 20.2 | .007    |

**287 ULTRASOUND MEASURED CERVICAL LENGTH, (UMCL) IS INVERSELY ASSOCIATED WITH MATERNAL HEIGHT** MELISSA SWAIN<sup>1</sup>, NICHHD MFMU Network, Bethesda, MD

**OBJECTIVE:** Previous results from the NICHD MFMU Network Preterm Prediction Study, (Goldenberg et al) found an association of UMCL with maternal body mass index (BMI) at 22 weeks gestation. We performed this analysis to evaluate relationships between maternal body size (height, weight, BMI) and UMCL at an earlier gestational age.

**STUDY DESIGN:** In a multicenter, blinded observational study, 147 women with a history of a prior spontaneous preterm delivery (<32 weeks gestation) were studied biweekly beginning at 16 weeks gestation using transvaginal ultrasound. A sample of ultrasounds was read centrally. For the purpose of this analysis, the initial measurement of cervical length was used. The association of cervical length with maternal height, weight, and BMI was examined using linear regression analysis.

**RESULTS:** No significant relationship existed in these women between cervical length and maternal weight or BMI. A trend for an inverse relationship was present between maternal height and cervical length. This relationship was statistically significant for non African-American women, ( $\beta = -0.308 P = .009$ ).

**CONCLUSION:** Shorter maternal height tended to be associated with longer cervical length, when measured at 16 weeks gestation. If further studies of high risk and low risk parturients confirm these preliminary data, standard criteria for evaluating UMCL may need to adjust for maternal height.

**Table**

**Analysis variable: Cervical length**

| AFRICAN AMERICAN | HEIGHT (CM) | N  | MEAN (MM) | STD DEV |
|------------------|-------------|----|-----------|---------|
| No               | <160        | 30 | 38.70     | 7.38    |
|                  | 160+        | 23 | 33.57     | 5.90    |
| Yes              | <160        | 26 | 33.58     | 10.61   |
|                  | 160+        | 68 | 33.29     | 9.12    |