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BIRTH -SIZE DISTRIBUTION IN 4050 INFANTS TO MOTHERS WITH DIABETES TYPE 1. A NATION-WIDE STUDY.

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Objective: In spite of improved metabolic control during pregnancy, mothers with insulin-dependent diabetes mellitus (IDDM) are still at risk of delivering macrosomic infants.[1]The aim of this study was to further characterize birth-size distribution in infants to IDDM mothers.

Methods: Population-based cohort study of infants (n=4,050; 2,054 boys)born to IDDM mothers in Sweden between1998-2007 with a gestational age (GA) of 28-42 weeks.Birth weight (BW) and birth length (BL) were retrieved from the Medical Birth Registry and expressed as SD-scores for healthy infants.Fatness was defined as BWSDS-BLSDS > +2, and leanness as BWSDS-BLSDS < -2.²Values are mean (SD).

Results: Mean BW was 3744(749) g and GA 37.6(2.1)wks.Mean BWSDS for IDDM-infants was 1.28(1.48) and BLSDS 0.70(1.24).Both SDS were normally distributed. The 90thpercentile for BWSDS was 3.21 and the 97.5th percentile was 4.41.Fatness was seen in 6.3% and leanness in 0.44% of the IDDM-infants.Term infants had higher BWSDS (mean1.31 vs 0.99, p< 0.001), higher BLSDS (mean 0.73 vs 0.53, p< 0.001) and higher proportion of fatness (6.7 vs 3.7%, p< 0.01) than preterm IDDM infants, whereas leanness was similar in the two groups.Girls had higher BWSDS (1.36 vs 1.19, p< 0.001) and higher BLSDS (0.76 vs 0.65, p< 0.01) than boys, whereas fatness/leanness was equally distributed among sexes.

Conclusion: Distributions for both BW and BL are significantly right-shifted in infants to IDDM mothers.A larger shift in BW- compared to BL-distribution indicates disproportional fetal growth. Further studies on causes and consequences of this early growth-deviation are warranted.

References:

1. Diabetes Care 2009;32:2005-9

2. Acta Paediatr 1993;82:333-9

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CARDIOPULMONARY RESUSCITATION BY CHEST COMPRESSIONS VERSUS VENTILATION PLUS CHEST COMPRESSIONS IN A PEDIATRIC ASPHYXIAL CARDIAC ARREST ANIMAL MODEL

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Background and aims: To compare survival, ventilation and hemodynamic variables achieved with chest compressions or ventilation plus chest compressions in a pediatric animal model of cardiac arrest.

Design and methods: Experimental study on 30 infant pigs with asphyxial cardiac arrest, which were randomized into 2 groups of cardiopulmonary resuscitation (CPR): Group 1 (16 pigs) : chest compressions plus non coordinated ventilation with mask and a mechanical ventilator and FiO2 21 % (VC). Group 2 (14 pigs): only chest compressions (CC). After 9 minutes advanced resuscitation continued the same in both groups until complete 30 minutes.

Results: 3 animals (18.8%) in group VC recovered spontaneous circulation while only 1 (7.1%) in group CC did it (p=0.351). None of the groups achieved acceptable oxygenation and ventilation during the early CPR. Nevertheless both oxygenation and ventilation were significantly better in group VC than in group CC after 9 minutes (PaO2: 26 mmHg vs 19 mmHg, p= 0.008; PaCO2: 84 mmHg vs 101 mmHg, p= 0. 05). Cerebral saturation was also higher in group VC (61%) than in group CC (30%), p= 0.006. In addition there were no significantly differences in arterial pH nor in mean arterial pressure.

Conclusions:

1-None of the early CPR protocol achieves adequate oxygenation and ventilation in this model of asphyxial cardiac arrest.

2- Chest compressions plus ventilation get better oxygenation and ventilation with no negative effect on the hemodynamic situation.