PERINATOLOGIC OUTCOMES OF CHILDREN BORN AS A RESULT OF IN VITRO FERTILISATION IN THE CZECH REPUBLIC DURING 2000 – 2006: *PERINATAL AND NEONATAL MORBIDITY AND MORTALITY*

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Aim and type of study: Neonatal data on a cohort of 22 949 children born as a results of In Vitro Fertilisation (IVF) in the Czech Republic (CR) compared with a cohort of 649 595 naturally conceived (NC) children. Analysis of perinatal and neonatal morbidity and mortality according to birth weight, gestational age, and fetal number.

Material and methods: A retrospective epidemiological analysis of perinatal data from the National Registry of Births and the National Registry of Congenital Anomalies in CR during 2000 – 2006.

Results: During the period between 2000 and 2006, there were 22 949 children born as a result of IVF with a sex ratio M/F of 1.03. From this total number there were 46.88% twins and 53.12% singletons. During the same period 649 595 NC children were born, with a sex ratio M/F of 1.06. From this total number there were 96.94% singletons and 3.06% twins.

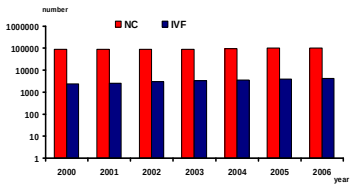
The incidence of stillbirths in the IVF/non-IVF cohort was 4.14‰/2.13‰ for the whole cohort, 5.13‰/2.03‰ for the singletons, 3.09‰/4.90‰ for the twins, 3.73‰/2.37‰ for the singletons with CA and 7.34‰/6.49‰ for the twins with CA. Perinatal mortality in the IVF/non-IVF cohort was 8.78‰/3.26‰ for the whole cohort, 6.82‰/2.91‰ for the children without CA, 23.44‰/12.03‰ for the children with CA, 6.67‰/3.03‰ for singletons and 11.49‰/10.24‰ for twins.

In the case of neonatal morbidity, the most frequent complications in the singletons in the IVF cohort were from the P50-P61 group according to ICD X (International Statistical Classification of Diseases and Related Health Problems 10th Revision) - (Haemorrhagic and haematological disorders). The highest perinatal mortality was found in the P90-P96 group (Other disorders originating in the perinatal period) – 89.77‰ and in the P20-P29 group (Respiratory and cardiovascular disorders) – 32.75‰. In the twins from the IVF cohort, the most frequent complications were from the P00-P04 group (Foetus and newborn affected by maternal factors) and from the P05-P08 group (Disorders related to length of gestation and foetal growth).

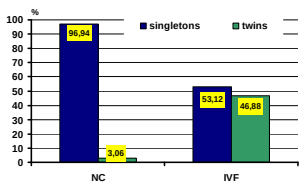
The highest neonatal morbidity (in both IVF and non-IVF cohort) was in children born before the 28th week of gestation; most complications were from the groups P20-P29 and P90-P96. Perinatal mortality was highest in the P10-P15 group (Birth trauma) – 285.71‰ and in the P50-P61 group (Haemorrhagic and haematological disorders) – 280.49‰. In the IVF children born between the 28th and 35th week of gestation, the highest perinatal mortality was in the P20-P29 group (Respiratory and cardiovascular disorders) – 22.64‰ and in the P35-P39 group (Infections specific to the perinatal period) – 15.30‰.

Conclusion: In the IVF children cohort we found a higher incidence of stillbirths, perinatal mortality and infant mortality, compared to the control cohort of NC children. Further, we found a higher incidence of neonatal complications in the IVF children cohort, compared to the control cohort of NC children. This is surely affected by the higher incidence of twins and prematurely born children with ELBW and LBW in the IVF children cohort, where another distribution of diagnosis could be expected – higher incidence of more severe diagnoses and therefore also higher neonatal morbidity and mortality. The higher incidence of prematurely born children with ELBW and LBW and the higher incidence of selected neonatal complications could be caused by increased maternal age in the IVF cohort and by the higher incidence of gestational complications.

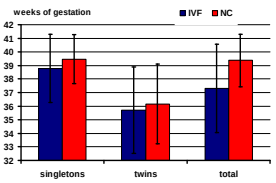
Number of births in the Czech Republic – NC x IVF



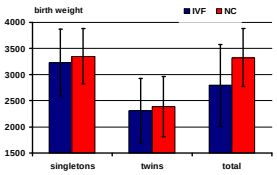
Proportion of singletons and twins – NC x IVF



Week of gestation (singletons/twins/total) – NC x IVF

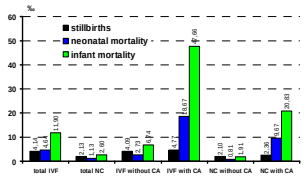


Birth weight (singletons/twins/total) – NC x IVF

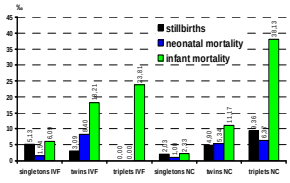


Neonatal complication – diagnosis: P00-P04 Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery P05-P08 Disorders related to length of gestation and fetal growth P10-P15 Birth trauma P20-P29 Respiratory and cardiovascular disorders specific to the perinatal period P35-P39 Infections specific to the perinatal period P50-P61 Haemorrhagic and haematological disorders of fetus and newborn P70-P74 Transitory endocrine and metabolic disorders specific to fetus and newborn P75-P78 Digestive system disorders of fetus and newborn P80-P83 Conditions involving the integument and temperature regulation of fetus and newborn P90-P96 Other disorders originating in the perinatal period Z38 Healthy newborn

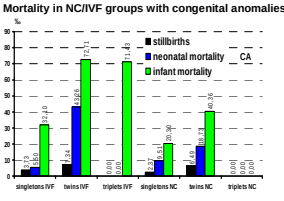
Perinatologic outcome – mortality in NC/IVF groups



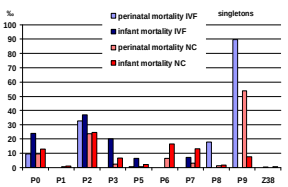
Mortality in NC/IVF groups – by fetal number



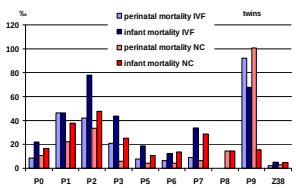
Mortality in NC/IVF groups with congenital anomalies



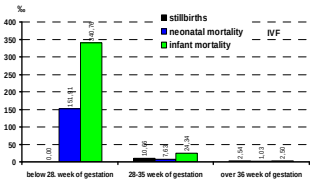
Mortality in NC/IVF singletons – by ICD 10 groups



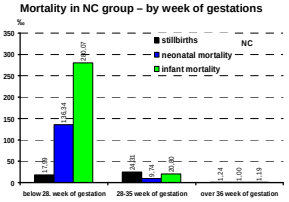
Mortality in NC/IVF twins – by ICD 10 groups



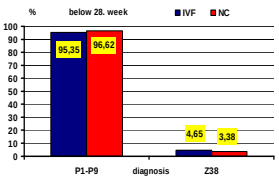
Mortality in IVF group – by week of gestations



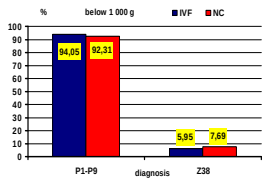
Mortality in NC group – by week of gestations



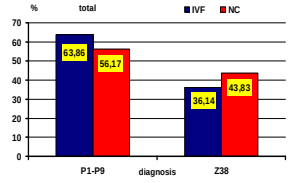
Morbidity in NC/IVF groups – below 28th week



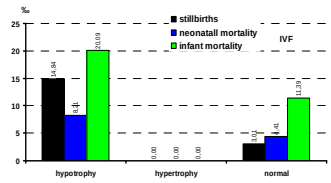
Morbidity in NC/IVF groups – below 1000g



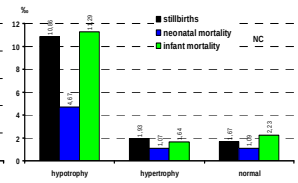
Morbidity in NC/IVF groups - total



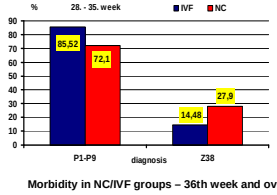
Mortality in IVF group – hypo- , hyper- and eutrophy



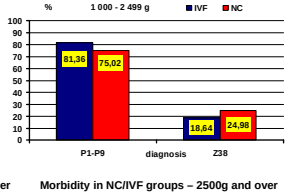
Mortality in NC group – hypo- , hyper- and eutrophy



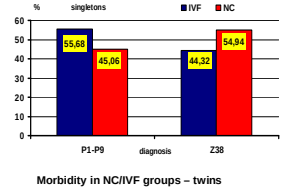
Morbidity in NC/IVF groups – 28th–35th week



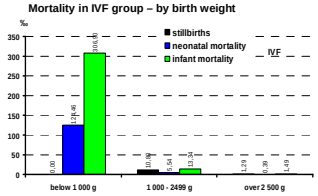
Morbidity in NC/IVF groups – 1000-2499g



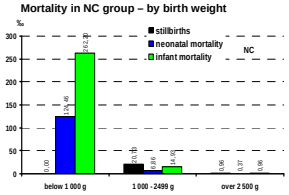
Morbidity in NC/IVF groups – singletons



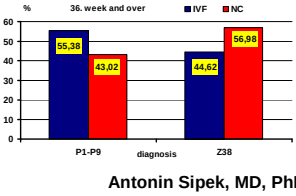
Mortality in IVF group – by birth weight



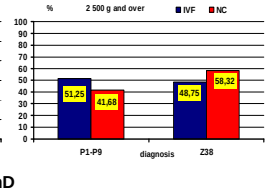
Mortality in NC group – by birth weight



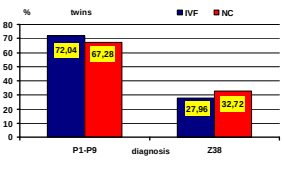
Morbidity in NC/IVF groups – 36th week and over



Morbidity in NC/IVF groups – 2500g and over



Morbidity in NC/IVF groups – twins



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