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Impact of parental ages and other characteristics at childbearing on congenital anomalies: Results for the Czech Republic, 2000-2007

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Abstract

Background: If the impact of maternal age at childbearing on congenital anomalies is well-known for the occurrence of Down syndrome, less is known concerning its effects on other major anomalies. Information is even scarcer for the possible effects of other maternal characteristics and of age of the father.

Objective: We present new results on the associations between parental ages and other maternal characteristics, on the one hand, and congenital anomalies, on the other hand, using data linkage between three Czech registries on mother, newborn, and malformations, for the period 2000-2007.

Methods: As the variables are in categorical format, binary logistic regression is used in order to investigate the relationship between presence/absence of a congenital anomaly, for each of the eleven types of anomalies considered, and the set of predictors.

Results: This research confirms the impact of a higher age of the mother on Down syndrome and on other chromosomal anomalies. Paternal age is not associated with chromosomal anomalies and, in this Czech population, has a rather slight effect on some of the congenital anomalies examined. Another finding of the present study is the possible role of various other maternal characteristics on congenital malformations.

Conclusions: Based on a large data set, this study concludes that both parental ages can be associated with congenital anomalies of the child, and that maternal characteristics other than age have also to be considered.

Comments: Risk factors can be tentatively proposed if they are based on a plausible and suitably tested explanatory mechanism. Unfortunately, in the majority of individual cases of congenital anomaly, the cause of the condition is still unknown and suspected to be an interaction of multiple environmental and genetic factors.

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