Safety of Anti-TNF-Alpha Therapy During Pregnancy on Long-term Outcome of Exposed Children: A Controlled, Multicenter Observation

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Background: Evidence of the impact of in utero exposure to anti–tumor necrosis factor (TNF)–alpha on long-term childhood development is limited. The aim was to assess the impact of in utero exposure to anti-TNF-alpha due to mothers' inflammatory bowel disease (IBD) on long-term postnatal development of exposed children.

Methods: We included consecutive children (≥12 months of age) born to mothers with IBD (2007–2016) treated with anti-TNF-alpha during pregnancy in 3 centers in the Czech Republic. A control group was comprised of unexposed children of non-IBD mothers undergoing mandatory check-ups at general pediatricians' offices. Data on perinatal period, psychomotor development, vaccination, infections, antibiotics, and allergy were collected by treating pediatricians using a predefined questionnaire.

Results: Seventy-two exposed and 69 unexposed children were included (median age, 35 and 50 months, respectively). Exposed children had growth and psychomotor development similar to controls. There was no significant difference in infectious complications within the first year of life (23.9% vs 17.4%; $P = 0.36$) or during the whole follow-up between exposed infants and controls ($P = 0.32$). Concomitant immunosuppressants during pregnancy and anti-TNF-alpha levels in cord blood were not associated with elevated infection rate within the first year of life ($P > 0.05$). Over 95% of exposed children had adequate serologic response to vaccination, except for haemophilus and mumps vaccines. Clinically manifested allergy was similar between the groups ($P = 0.98$).

Conclusions: Anti-TNF-alpha exposure in utero does not seem to have a negative impact on postnatal development of children with regard to infectious complications, allergy, growth, or psychomotor development when compared with unexposed children of non-IBD women.

Key Words: anti-TNF-alpha, children, infections, vaccination, inflammatory bowel disease

INTRODUCTION

Inflammatory bowel disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC), is a chronic inflammatory bowel disorder diagnosed mainly at a young, reproductive age.[1] Thus, a clinically significant proportion of female patients conceive after the onset of the disease and are exposed during their pregnancy to IBD-related medication including biologic therapy. Therefore, a knowledge of safety for the treatment

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Conflicts of interest: Dana Duricova: speaker for AbbVie and Takeda; attendance of advisory board for Janssen. Eva Dvorakova: none to declare. Ondrej Hradsky: lectures/congress fees/consultancy: MSD, AbbVie, Nutrica, Nestlé, Ferring, Falk. Katarina Mitrova: speaker for AbbVie. Marianna Durilova: none to declare. Jana Kozeluhova: none to declare. Pavel Kohout: lecture fees from MSD, Abbvie; consultancy: Janssen. Kristyna Zarubova: consultancy for Nestlé, Nutricia. Jiri Bronsky: lectures/congress fees/consultancy: AbbVie, MSD, Nutricia, Nestle, Biocodex, Akacia, Walmark. Nora Hradska: none to declare. Eva Bronska: congress fees from Pfizer. Miroslava Adamcova: none to declare. Nadezda Machkova: speaker for AbbVie and Takeda. Veronika Hruba: speaker for Janssen. Martin Bortlik: consultant or speaker for Abbvie, Janssen, Pfizer, Takeda, Biogen, and Egis. Martin Lukas: none to declare. Karin Malickova: consultant and speaker for Takeda Celltrion. Milan Lukas: consultant or speaker for Janssen, MSD, Pfizer, Takeda Celltrion, and Egis.

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