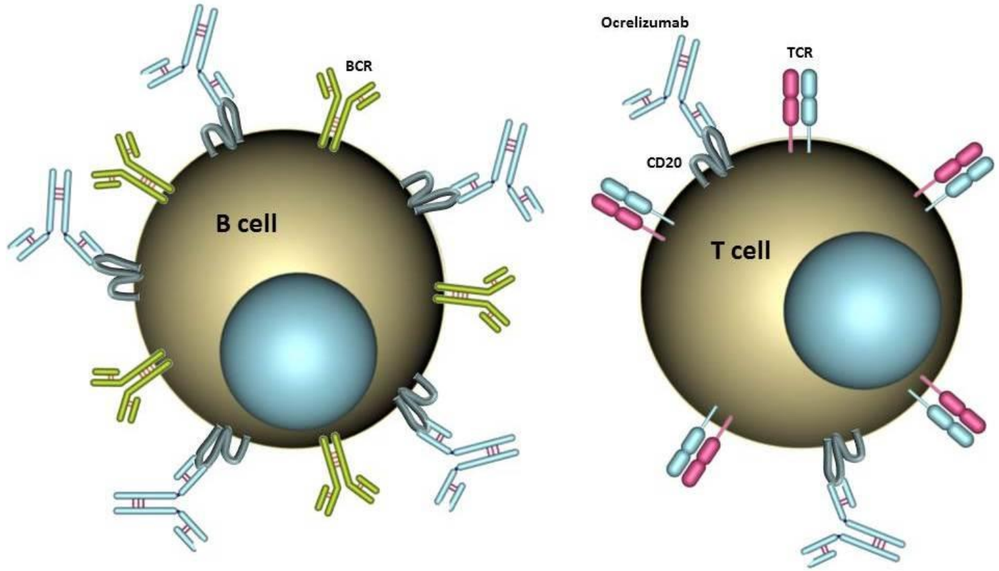
36th ENTIS Conference 11th – 14th Sept 2025
ARISTOTLE UNIVERSITY'S RESEARCH DISSEMINATION CENTER (KEDEA)
THESSALONIKI, GREECE
E-Poster 21

Ocrelizumab use before pregnancy and neonatal B-cell depletion: A case report.

Georgios Eleftheriou, Anna Sangiovanni, Raffaella Butera, Mariapina Gallo, Andrea Giampreti, Lorella Faraoni, Marco Cirronis, Maria Gioia Contessa, Cristina Ferrari, Giuseppe Bacis

Poison Control Center and Teratology Information Service, ASST Papa Giovanni XXIII, Bergamo



Introduction

Ocrelizumab is a recombinant humanized IgG1 monoclonal antibody that depletes B-lymphocytes by binding their surface antigen CD20 through antibody-dependent cellular phagocytosis or cellular cytotoxicity or complement-dependent cytotoxicity, approved for the relapsing forms of multiple sclerosis. Several studies reported normal neonatal B-cell counts after therapy ending shortly before conception or during early pregnancy; only two cases of B-cell depletion are reported when ocrelizumab was used during the second and third trimester of pregnancy. We report the first case of transient neonatal B-cell depletion while the dug was stopped 3 months before conception.

Case report

We present a 28-years-old female suffering from relapsing multiple sclerosis who was stared with ocrelizumab infusion and subsequent doses of 600 mg IV infusion every 6 months with favorable response. She conceived 3 months after the last administration.

Results

Pregnancy was uncomplicated and the patient delivered at 38 weeks gestation via cesarean section for previous caesarean section a male (weight 3500 g, APGAR 10/10). On examination he was deeply jaundiced but otherwise healthy. At birth, the percentage of postnatal CD 19+ B cells was 0.6% (range 6-25) and one month later increased to 23.4%. CD3+, CD4+ and CD8+ T cells as well as natural killer cells (CD56+CD3−) were into normal ranges. No signs of infections were observed.

Lymphocyte Subsets in the infant

	Infant (at birth)	Ref. Range
CD19 B-Cells absolute, cell/µL	11	315-1383
CD19 B-Cells as % of ALC	0.6%	6-25%
CD3 T-Cells (T Total) as % of ALC	73.41%	55-84%
CD4 T-Cells (T Helper) as % of ALC	56.63%	31-60%
CD8 T-Cells (T Cytotoxic) as % of ALC	18.39%	13-41%
CD16 + CD56 (T-Cells Natural Killer) as % of ALC	26.42%	3-22%

Conclusions

The mean half-life of ocrelizumab is 26 days while the fetal B cells circulate by the 12th week from conception. Therefore, placental transfer of ocrelizumab can start at around 16 weeks of gestation (similar to other IgG immunoglobulins) and considering five half-times for a complete elimination of the drug, it is improbable a biologic effect of ocrelizumab if the therapy is stopped 3 months before conception.

From the other hand, longer half-life of 39 days has been reported in the literature; moreover, the manufacturer reported that the longest terminal half-life recorded in women was 53 days. These observations make possible the fetal B-cell depletion as we have seen in our case. Eventually, in adults the median time to B-cell repletion is 72 weeks (range 27-175 weeks) but in our neonate there was a very quick repletion.

Since the CD20 is not expressed on progenitor B cells, thus early B-cell precursors should not have been affected by ocrelizumab treatment contributing to the fast B-cell recovery observed.