

L. CUERVO-PARDO¹, M. BARCENA-BLANCH², C. RADOJICIC²

Omalizumab use during pregnancy for CIU: a tertiary care experience

¹Medicine Institute, Cleveland Clinic

²Department of Allergy and Clinical Immunology, Respiratory Institute, Cleveland Clinic

KEY WORDS

urticaria; pregnancy; Omalizumab

Summary

The treatment of antihistamine and steroid resistant Chronic Idiopathic Urticaria (CIU) during pregnancy poses a challenge due to teratogenicity of immunosuppressants. Omalizumab is a recently FDA approved therapy for CIU and is classified as pregnancy category B. We present an initial series of subjects treated at a tertiary care center for antihistamine and steroid resistant CIU with omalizumab who became pregnant during therapy.

Corresponding author

Cristine Radojicic
9500 Euclid Ave, A90,
Cleveland, OH 44195, USA
Phone: +1 216 986 4000
Fax: +1 216 445 2104
E-mail: radojic@ccf.org

Chronic Idiopathic Urticaria (CIU) affects 1% of the US population (1). There is a reported increase in prevalence of CIU among female groups with the highest birth rates in the US, those with a median age of 35 years (2). However, there is a lack of published data regarding prevalence of urticaria during pregnancy and its association with pregnancy complications and fetal outcomes. Previously, H1 antihistamines were the only approved therapy in the US for CIU and until today are considered first line therapy. However, nearly 50% of patients with CIU are unresponsive to antihistamine therapy alone. Corticosteroids are frequently incorporated in their management. Known pregnancy complications from steroid use include pre-eclampsia, gestational diabetes, primary cleft palate, neonatal adrenal insufficiency and low birth weight (3). Omalizumab, currently 4th line of therapy, is a pregnancy category B drug recently FDA approved for CIU.

We report a series of four female subjects, between the age of 25 and 28, treated with Omalizumab for antihistamine and steroid

resistant urticaria, who became pregnant during therapy. Three of the four patients had a concomitant history of asthma demonstrated by pulmonary function tests, and two had a diagnosis of allergic rhinitis with positive skin testing. All four patients had failed multiple combination regimens that included high doses of first and second generation antihistamines coupled with H2 blockers and a leukotriene antagonist. Three patients were on immunosuppressive therapy with hydroxychloroquine, dapsone or cyclosporine without response. All subjects had received prednisone and two patients required chronic steroid therapy. All patients underwent workup including normal CBC, CMP, TSH and tryptase level. After failing previous regimens they were all started on Omalizumab at a dose of 300 mg subcutaneously (SC) every 28 days. Within the first month of therapy, all patients reported significant improvement of their symptoms demonstrated by lower urticaria index scores, decreased medical utilization and weaning of steroids. Three patients had been on

Omalizumab treatment for a year prior to pregnancy, one had been on treatment for only two months. All patients were informed on risks, benefits and previously reported outcomes of Omalizumab therapy for asthma during pregnancy (EXPECT) prior to proceeding with therapy. They were followed monthly, all patients had normal prenatal care, full term deliveries and no pregnancy or fetal complications.

To our knowledge, there are no published randomized controlled studies of Omalizumab in pregnancy. Reproductive studies on *Cynomolgus* monkeys at SC doses up to 10 times the maximum recommended human dose (75 mg/kg) failed to show harm to the fetus (4). Our reported experience is in agreement with previous reports of the EXPECT trial (5). Omalizumab remains a 4th line therapy for treatment of CIU but its excellent efficacy, symptom resolution and label as a pregnancy

category B postulates it as an alternative option in pregnant patients that are unresponsive to antihistamines.

References

1. Kasperska-Zajac A, Brzoza Z, Rogala B. Sex hormones and urticaria. *J Dermatol Sci.* 2008;52:79-86.
2. Martin J, Hamilton B, Osterman M, et al. Births: Final data for 2013. January 15, 2015;vol 64:1.
3. Mariotti V, Marconi AM, Pardi G. Undesired effects of steroids during pregnancy. *J Matern Fetal Neonatal Med.* 2004;16Suppl2:5-7.
4. Schatz M, Zeiger RS. Asthma and allergy in pregnancy. *Clin Perinatol.* 1997;24:407-32.
5. Namazy J, Cabana MD, Scheuerle AE, Thorp JM, Jr, Chen H, Carrigan G, et al. The Xolair Pregnancy Registry (EXPECT): The safety of omalizumab use during pregnancy. *J Allergy Clin Immunol.* 2014;135:407-12.