ABO blood group incompatibility and infertility: still an open debate

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Now as before, there's controversy in the field of immunoreproduction.

Clinical interest in the immunologic factors of infertility began in the 1950s with a number of case-reports observing spermatozoal antibodies in the serums of infertile women via hemagglutination techniques.

In a March/April 1967 *Fertility and Sterility* article, Schwimmer et al. (1) presented their first studies on couples with unexplained infertility, postpartum women, women in early pregnancy, unmarried women, and prostitutes. They suggested that ABO blood group incompatibility, sperm autoimmunity, and isoagglutination were three possible immunologic causes of infertility. This opened up controversy in the field, which still remains today.

In the same issue, Tyler et al. (2) presented a meta-analysis on immunoreprodution in humans and other mammals. Among others, they discussed evidence that ABO blood group incompatibility may be linked to infertility, which had been first reported seven years earlier by Behrman et al. (3).

The authors reviewed data relating blood groups in offspring and their parents, reporting a small but statistically significant anti-fertility effect due to ABO incompatibility. They speculated that blood group antibodies, detected in the cervical mucus, could prevent fertilization by inactivating a fraction of the sperm. However, they concluded that other possible mechanisms could explain such small antifertility effects.

Fifty years later, this remains an open debate. Over the years, several studies have tried to understand whether blood group is a risk factor for female infertility, including diminished ovarian reserve, ovarian hyperstimulation syndrome, recurrent miscarriage, and thrombosis. Unfortunately, no one has conclusively confirmed this link nor exposed the underlying mechanisms (4).

Therefore, the relationship between immunology and assisted reproduction is still controversial. New data about immunoreproduction have been reported which could explain some of the recurrent pregnancy loss or causes for recurrent implantation failure. However, immune tests and treatments available to date still suffer from poor study design and patient heterogeneity, and therefore are not ready for use in clinical practice (5).

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