

CLINICAL SPECIFICATIONS

OVARY / TESTIS

Function:

Reproductive organ tissue (Ovary, Testis) makes up the structure of female and male sex organs respectively. These organs are parts of the reproductive and endocrine systems. Ovaries secrete hormones estrogen and progesterone. Testes produce sperm and androgens, primarily testosterone.

Antibodies Appear:

Autoimmune Endocrine Disorders^{6,7}
 Autoimmune Polyendocrine Syndrome Type 1⁵
 Hypogonadism⁵
 Premature Menopause⁴
 Premature Ovarian Failure^{3,4}

Known Cross-Reactions: Gliadin (Ovary high cross-reactivity, Testis slight cross-reactivity)⁸

Clinical Significance:

High levels of antibodies against reproductive organs tissue (Ovary, Testis) may indicate an autoimmune response directed at sex organ tissues. There is a high prevalence of infertility in the Celiac population.²

Female: Ovarian antibodies appear in spontaneous premature ovarian failure (POF),^{3,7} and infertility.^{4,7} POF is frequently associated with autoimmune disorders, particularly autoimmune thyroid disease. In the absence of clinically overt disease, some patients have serological evidence of autoimmunity mainly against thyroid,¹ thus POF patients should be assessed for autoimmune thyroid disorders and conversely, thyroiditis patients should be assessed for reproductive organ antibodies.

Male: Testis antibodies appear in events of testicular trauma,⁶ polyendocrine syndrome⁵ and infertility.^{6,7} Circulating antibodies to testis can occur after testicular trauma resulting in autoimmunity against male sex organ tissue. One third of unexplained infertility cases are identified as male infertility problems; an autoimmune response to testis may play a role in male infertility.⁵

References:

1. Ashrafi, et al. The presence of anti thyroid and anti ovarian auto-antibodies in familial premature ovarian failure. *Int J Infertility Sterility*, 2008; 1(4):171-174.
2. Bast, et al. Celiac disease and reproductive health. *Pract Gastroenterol*, 2009; 35(10):10-21.
3. Fénelich, et al. Prevalence, specificity and significance of ovarian antibodies during spontaneous premature ovarian failure. *Human Reproduction*, 1997; 12(12):2623-2628.
4. Luborsky, et al. Ovarian antibodies, FSH and inhibin B: independent markers associated with unexplained infertility. *Human Reproduction*, 2000; 15:1046-1051.
5. Reimand, et al. Testis-expressed protein TSGA10 an auto-antigen in autoimmune polyendocrine syndrome type-I. *Int Immunol*, 2008; 20(1):39-44.
6. Sakamoto, et al. Testicular injury induces cell-mediated autoimmune response to testis. *J Urol*, 1995; 153:1316-1320.
7. Tung and Teusher. Mechanisms of autoimmune disease in the testis and ovary. *Human Reproduction Update*, 1995; 1(1):35-50.
8. Vojdani and Tarash. Cross-reaction between gliadin and different food and tissue antigens, *Food Nutri Sci*, 2013; 4:20-32.