

PROSTATIC FLUID IMMUNOGLOBULIN A, M, G, E IN CHRONIC PROSTATITIS SUFFERERS

Bayraktar V. M.

Mechnikov National University, Odesa, Ukraine.

virolviro6@gmail.com

Introduction: Immunoglobulins reach the secretion, where the plasma cells are located, whether immunoglobulins are antigen-specific and where activation of the adaptive immune response. Immune cells, were scattered in the stroma and not organized mucosae-associated lymphoid-tissue. IgA immunostaining identified stromal plasma cells and epithelial cells in non-immunized rats. Injected tetramethylrhodamine - IgA transcytosed the epithelium along with polymeric immunoglobulin receptor. An increased number of dendritic cells that cooperate in other sites with transient immunocompetent lymphocytes, and the higher levels of interleukin-1 β , interferon- γ and transforming growth factor- β , explain the levels of specific antibodies. Nasal immunization produced similar results except for the increase in dendritic cells. This immunomodulatory strategy seems useful to boost immunity against genitourinary infections and, perhaps, cancer.

IgA and IgG are part of the many components of the prostate gland secretion, and correspond to 0.1 and 0.05 mg/mL of the seminal fluid, respectively. IgA and IgG were initially identified in association with the prostate secretion within the lumen of human prostate biopsy samples, by immunofluorescence. The variation in IgA content in the prostatic fluid and serum in chronic prostatitis led to the assumption of the non-systemic character of prostate immunity.

Infections of the urogenital tract and chronic prostatitis result in the presence of IgA in the prostatic fluid and in higher titers of bacteria-specific antibodies in the prostate secretion as compared to the serum, in some conditions. Production of specific antibodies in the absence of local infection. In addition, it is not known whether this possibility may be related to the fact that most cases of prostatitis are not directly associated with the presence of an infectious agent.

Aim. To determine physiological and pathophysiological concentration of immunoglobulins A, G, M, and E in expressed prostatic secretion (EPS) and sperm in chronic prostatitis sufferers.

Material and Methods: *Total IgA* - Enzyme immunoassay (ELISA) reagent kit for enzyme-linked immunosorbent assay of total IgA in biological fluids. Type of material for testing: blood serum (plasma), saliva, urine, cerebrospinal fluid.

Shelf life of kit is 18 months, storage conditions +2 + 8°C, calibration sample range 0.1 - 5.0 g/L. Sample dilution: blood serum (plasma) 1:4999. Detection range of sensitivity LoD - 0.06 g/L. (Xema LLC Company, Kyiv, Ukraine).

Total IgM - Enzyme immunoassay (ELISA) reagent kit intended for quantitative determination of the concentration of total IgM in biological fluids by solid-phase enzyme-linked immunosorbent assay (ELISA). (Xema LLC Company, Kyiv, Ukraine).

Shelf life of kit is 18 months, storage conditions +2 +8°C, calibration sample range 0.5 - 10.0 g/L. Sample dilution: blood serum (plasma) 1:4999. Detection range of sensitivity LoD - 0.06 g/L. (Xema LLC Company, Kyiv, Ukraine).

Total IgG - Enzyme immunoassay (ELISA) reagent kit intended for quantitative determination of the concentration of total IgG in biological fluids by solid-phase enzyme-linked immunosorbent assay (ELISA).

Shelf life of kit is 18 months, storage conditions +2 +8°C, calibration sample range 1.0 - 25.0 g/L. Sample dilution: blood serum (plasma) 1:4999. Detection range of sensitivity LoD - 0.06 g/L. (Xema LLC Company, Kyiv, Ukraine).

Total IgE - Enzyme immunoassay (ELISA) reagent kit intended for quantitative determination of the concentration of total IgG in biological fluids by solid-phase enzyme-linked immunosorbent assay (ELISA).

Shelf life of kit is 18 months, storage conditions +2 +8°C, calibration sample range 50.0 - 1000.0 IU/ml. Volume of the testing sample - 50.0 microliter (µL). Detection range of sensitivity LoD - 3.0 IU/ml. Range of quantitative determination LoQ - 50.0 IU/ml (Xema LLC Company, Kyiv, Ukraine).

To determine total IgA; IgM; IgG; IgE in blood serum (plasma) is based on the use of a competitive solid-phase enzyme-linked immunosorbent assay (ELISA). On the external wells in plastic plate for testing are immobilized on the inner surface of the wells of the plate. The total IgA; IgM; IgG, and IgE cross-linked with horseradish peroxidase is used as a conjugate. The analysis procedure includes two incubation stages. During the first stage, IgA; IgM; IgG, and IgE from the test sample competes with conjugated immunoglobulins for binding to antibodies on the surface of the well. As a result, a complex containing peroxidase bound to the solid phase is formed. During the second stage, the complexes formed are visualized as a result of the reaction with the chromogen 3,3',5,5'-tetramethylbenzidine. After stopping the reaction with a stop solution, the intensity of color in wells of the plate is measured. The obtained values are inversely proportional to the concentration of immunoglobuline in the tested blood serum (plasma) sample. This concentration is determined from the calibration graph of the dependence of optical density on the content of immunoglobulins in the calibration samples.

Results and Discussion: In Chlamydial infections, the immune system responds by producing various immunoglobulins (antibodies) including IgM, IgG, IgA, and IgE. While these antibodies are present, they don't prevent reinfection, and their presence can be a sign of past or current infection. Specific IgG antibody titers can be used to assess the presence of infection, with higher titers generally indicating a current infection. The Chlamydia antibody test contains both species- and genus-specific antigens, and serological cross-reactions may be seen in both acute and convalescent samples (less than antibody titer 1:128). After several days of infection (approximately in 5 days), IgM is screened in the blood, which means acute infection. At ten days of initial infection, IgM will be replaced with IgA and in 2-3 weeks will be produced IgG, that means chronic infection. Since of ten days of initial infection, IgM will be replaced with IgA and in 2-3 weeks will be produced IgG, that means chronic infection. A positive result indicates the presence of IgG antibodies to *Chlamydia trachomatis*, suggesting a past or chronic infection. A negative result indicates the absence of these

antibodies, but it does not completely rule out an infection. *Chlamydia trachomatis* IgM is a test related to enzyme-linked immunosorbent assay (ELISA) which diagnoses the IgM antibodies even after many months of Chlamydia infection. Chlamydia is basically a sexually transmitted disease that severely infects the rectum, urethra, and cervix drastically. IgA test for *Chlamydia trachomatis* test is done to help diagnose a current or recent *Chlamydia trachomatis* infection. It is often used when a patient shows symptoms of a Chlamydia infection, or if they are at a higher risk of contracting the infection, such as having multiple sexual partners or a partner with a confirmed infection. Anti Chlamydia antibodies IgG test is performed on a sample of blood to measure the level of anti Chlamydia antibodies - IgG in the blood. It is valuable in diagnosing asymptomatic pelvic inflammatory disease (PID) and tubal damage after repeated instances of PID. *Chlamydia trachomatis* antibody analysis is used as an ancillary method after confirmation by another tests. In response to *Chlamydia trachomatis*, human body produces three types of antibodies: IgM, IgG and IgA. After several days of infection during five days, IgM is screened in the blood, which means acute infection. Since of 10 days of initial infection, IgM will be replaced with IgA and in 2-3 weeks will be produced IgG, that means chronic infection. It is possible that all the three types of antibodies showed in the blood at the same time. Negative IgA, IgM and IgG means - no evidence of infection. Positive IgM, IgA, and IgG - acute or chronic infection. Positive IgG - past infection, convalescent period - positive IgA, IgM - acute or reactivation of infection.

Herpes simplex virus type-1 and type-2 (HSV) tests often look for two types of immunoglobulins: Immunoglobulin G (IgG) and Immunoglobulin M (IgM). IgG antibodies indicate past infection and provide long-term immunity, while IgM antibodies suggest a recent or ongoing infection. IgG appears soon after infection and stays in the blood for life. IgM is actually the first antibody that appears after infection, but it may disappear thereafter. IgM tests are not recommended because three serious problems: many assume that if a test discovers IgM, they have recently acquired herpes. A positive IgM test might mean you have a new or recurrent HSV infection. The herpes IgG test detects IgG antibodies in the blood specific to HSV. It does so when the immune system has produced enough IgG antibodies to be detectable by current lab tests. For HSV, IgG antibodies normally reach detectable levels in the blood within 12 to 16 weeks after infection.

IgG antibodies are present soon after infection with HSV and remain in the blood for life. A test result showing IgG antibodies will tell a person that they have experienced an infection in the past and that they have antibodies against the virus.

Conclusions. We determined concentration of immunoglobulins: IgA; IgM; IgG, and IgE. In the research included sufferers in chronic prostatitis in reproductive age 18-45 years old. Result of concentration total immunoglobulin in expressed prostatic secretion (EPS) compare with concentration of blood are different. In EPS results in maximal range. IgA- 36 ± 2.31 g/L, IgA- 82 ± 4.35 g/L. IgG- 24 ± 1.84 g/L. IgE- 27 ± 1.36 IU/ml.

Keywords: immunoglobulin, IgA, IgM, IgG, IgE, chronic prostatitis, herpes simplex virus, Chlamydia immunoglobulins.