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JOURNAL ARTICLE

Cytokine levels in the seminal plasma of infertile males

M. S. Gruschwitz, R. Brezinschek and H. P. Brezinschek
Department of Dermatology, Medical School, University of Erlangen-Nuernberg, Germany.

Cytokines released by various cell subsets in the male urogenital tract are capable of markedly influencing sperm function and fertility. We determined the cytokine content in the seminal plasma of patients with unexplained infertility and correlated the results with urogenital infections and sperm parameters. Routine sperm parameters, bacterial culture of seminal plasma and blood follicle-stimulating hormone (FSH), luteinizing hormone (LH), and testosterone were obtained from 14 infertile males and 8 healthy control subjects. Interleukin 1 beta (IL-1 beta), interleukin 6 (IL-6), and tumor necrosis factor alpha (TNF alpha) levels in the seminal plasma were measured by enzyme-linked immunosorbent assay (ELISA). IL-1 beta, IL-6, and TNF alpha levels in the seminal plasma were negatively correlated with the number of progressively motile sperm, but there was no correlation with total sperm counts, viability, pH, morphological alterations, type of abnormality, and hormone parameters. Cytokine levels were significantly elevated in seminal plasma exhibiting bacterial or mycoplasmal infections of the urogenital tract. Urogenital infections lead to an release of inflammatory cytokines, most probably by immunocompetent cells of the lymphocyte/macrophage origin. Cytokines such as IL-1, IL-6, and/or TNF alpha might influence sperm motility via direct or indirect effects, resulting in reduced mucosa penetration properties. Therefore, our data suggest that cytokines may be involved in reduced male fertility.

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