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ASSOCIATION OF UREAPLASMA UREALYTICUM WITH ABNORMAL REACTIVE OXYGEN SPECIES LEVELS AND ABSENCE OF LEUKOCYTOSPERMIA

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Purpose

Ureaplasma urealyticum is a commensal of the lower genitourinary tract of many sexually active adults. The organism is more common in partners of infertile than fertile marriages. We conducted a prospective study at our tertiary care center to confirm a possible association between U. urealyticum and abnormal sperm function parameters.

Materials and Methods

A total of 50 consecutive male patients seeking general urology consultation for lower urinary tract symptoms characteristic of chronic prostatitis were evaluated. Urine and semen localization cultures were performed with additional semen cultures for U.

urealyticum, Chlamydia trachomatis and Mycoplasma hominis. Specimens from 21 healthy men were used as controls. Specimens were analyzed by a computer assisted semen analyzer, and verified manually for concentration, percent motility and morphology. Leukocytospermia was measured by the Endtz test. Semen specimens were also analyzed for reactive oxygen species (ROS), acrosome reaction and mannose binding assay.

Results

Of the patients 17 had positive U. urealyticum cultures and the other cultures were negative. Patients with U. urealyticum had significantly higher ROS levels ($\log [\text{ROS} + 1] = 2.52 \hat{\pm} 0.25$) than those without U. urealyticum ($1.49 \hat{\pm} 0.20$, $p = 0.002$) or controls ($1.31 \hat{\pm} 0.19$, $p = 0.002$). Leukocytospermia was detected in only 1 of the 17 (6%) positive specimens and 4 (12%) negative specimens.

Conclusions

Seminal ROS levels are elevated among patients with U. urealyticum. ROS induces lipid peroxidation, which reduces membrane fluidity and sperm fertilization capability, and may be the mechanism by which U. urealyticum impairs sperm function. Absence of leukocytospermia does not exclude U. urealyticum.



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Key Words:

urinary tract; ureaplasma urealyticum; infertility; reactive oxygen species; spermatozoa

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