Title: FREQUENCY OF SPERM CELLS WITH FRAGMENTED DNA IN MALES INFECTED WITH Chlamydia trachomatis AND Mycoplasma sp., DETERMINED WITH THE SPERM CHROMATIN DISPERSION (SCD) TEST

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**Objective:** To determine the frequency of sperm cells with fragmented DNA in semen samples from men with genitourinary infection by *Chlamydia trachomatis* and *Mycoplasma sp.*, and the influence of antibiotic therapy.

**Design:** Prospective study in 143 males from couples attending the andrology-infertility center and a control group of 50 fertile subjects. The effect of antibiotic treatment was assessed in 95 male patients.

**Materials and Methods:** Standard semen analysis, sperm DNA fragmentation and clinical outcome were estimated. Sperm DNA fragmentation was determined using the SCD test (Fernández et al., Fertil Steril 84:833-42, 2005).

**Results:** The percentage of sperm cells with fragmented DNA was 35.2±13.5, 3.2 times higher than the control fertile group (10.8±5.6). Concentration, morphology and motility were also significantly affected but in a much lower magnitude: 1.7 times, 1.8 times, and 1.1 times average lower than control, respectively. After 3.8±2.2 months of antibiotic treatment, the frequency of sperm cells with fragmented DNA decreased from 37.7±13.6 to 24.2±11.2 (Wilcoxon test, p<0.0001). The relative percentage of improvement was greater for DNA integrity (median: 35.7%) than it was for morphology (median: 25.0%). Sperm concentration and motility were not significantly improved. Remarkably, while only 12.5% of couples achieved pregnancy during antibiotic treatment course (n=16), 85.7% of couples achieved pregnancy after antibiotic treatment (n=14) (Spearman r correlation coefficient: 0.73, p<0.0001; c² test, p<0.0001). The only significant differences found between both groups was the rate of sperm DNA fragmentation (p=0.047) and morphology (p=0.040).

**Conclusions:** Patients with genitourinary infection by *Chlamydia trachomatis* and *Mycoplasma sp.* have increased frequency of sperm DNA fragmentation in comparison to fertile controls. This increase is proportionally greater than that found in classical semen parameters. After antibiotic therapy, DNA fragmentation is decreased to a greater extent than for any other semen parameter. These results suggest that genitourinary infection by *Chlamydia trachomatis* and *Mycoplasma sp.* may result in a decreased fertility potential due to sperm DNA fragmentation. Antibiotic therapy appears to be important in providing remedy for infection-induced high DNA fragmentation levels.

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