

REDUCED SPERM QUALITY IN PATIENTS WITH FLUOROSIS: A CASE-CONTROL CLINICAL STUDY IN RAJASTHAN, INDIA

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SUMMARY: Fluoride (F) contamination in water (>1.5ppm) contributes to a variety of adverse health effects in many countries and has been reported as being a causative factor of male infertility, although the scientific literature on this is limited. The objective of the present study was to examine F-induced seminal profile alterations and the associated biochemistry in fluorotic patients with mild, moderate, and severe fluorosis. We recruited 85 individuals, aged 30 – 50 yr, who were residing in a high-F region (>2.5 ppm) and healthy age-matched controls from a low-F region (<1.5ppm) of the Rajasthan. Semen samples were collected for assessment of semen quality (motility, count, and viability) and biochemical profiles (protein, fructose, lipids, phospholipids and cholesterol). Analysis of the semen samples revealed that the sperm count was significantly decreased ($p<0.01$) in the high-F region subjects and the other parameters also altered. Significant reductions ($p<0.001$) were present in fructose (mg/mL), protein (mg/mL), lipid (mg/mL), and phospholipids (mg/mL) while cholesterol (mg/dL) was significantly increased ($p<0.001$) in the high-F subjects. On the basis of these results, we concluded that fluoride alters the normal reproductive process by affecting the morphology and biochemistry on semen. Further study is needed to fully understand these adverse effects.

Key Words: Fluoride; Rajasthan, India; Semen;

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