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Usefulness of the Hypo-Osmotic Swelling Test in Predicting Pregnancy Rate and Outcome in Couples Undergoing Intrauterine Insemination

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This study was designed to evaluate the usefulness of the hypo-osmotic swelling (HOS) test in predicting successful conception and the pregnancy outcome in couples in whom men are affected by mild infertility and fertile women are treated with ovulation induction and intrauterine insemination (IUI). We retrospectively analyzed the results obtained from 120 couples who underwent not more than 3 consecutive cycles of gonadotropin-induced mono-ovulation followed by IUI. Semen was analyzed by classical parameters, and the HOS test was performed using a hypo-osmotic solution. Using HOS, at least 50% swollen spermatozoa was considered normal. The pregnancy rate obtained in couples with an HOS less than 50% was significantly lower ($P < .05$) than that achieved in couples with HOS values at least 50%. Furthermore, the miscarriage rate was higher when HOS was less than 50%. For prediction of successful pregnancy, the sensitivity and specificity of the HOS test was 64% and 75%, respectively; the predictive value of an abnormal test was 94%, and that of a normal test was 24%. The HOS test may detect subtle damage in spermatozoan structure, which is responsible for the reduced capacity of spermatozoa to induce a viable embryo, with a low rate of pregnancy and a high rate of miscarriage. The results suggest that the HOS test may help in recognizing men who have a poor chance of fertilizing their partners and to have viable pregnancies using IUI.

Key words: Layering technique, male infertility, pregnancy outcome, spermatozoal abnormal membrane, sperm function test, swollen spermatozoa

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