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Relationship between the human sperm hypo-osmotic swelling test and sperm penetration assay

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The hypo-osmotic swelling (HOS) test has been proposed as a useful assay in the diagnosis of the infertile male. A good correlation between the HOS test and the sperm penetration assay (SPA) in fertile and normal semen samples was initially found, but subsequently, no significant correlation was demonstrated with fertile and infertile patients. To validate the potential clinical usefulness of the HOS test, we evaluated 92 ejaculates using the HOS test, SPA, and traditional semen parameters. The methodology originally described by Jeyendran et al (1984) was used for the HOS test. The SPA was performed by the original procedure using an 18-hour preincubation period, and for 28 ejaculates, a modified procedure using TEST-yolk buffer was performed. Values of 60% or more for the HOS and 1% or more for the SPA were considered positive, and less than 60% for HOS and 0% for SPA were considered negative when the standard SPA was performed. For the TEST-yolk buffered SPA, values of 20% or more were considered positive. The sensitivity of the HOS test was 87%, but the specificity was 36%. The association of the two tests over and above that expected by chance (Kappa) was only 0.23. Using logistic regression, both sperm count (P less than 0.001) and morphology (P less than 0.025) were significant predictors of the SPA classification, but the HOS test did not improve the predictive results (P greater than 0.50). (ABSTRACT TRUNCATED AT 250 WORDS)

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