PREDICTION OF SPONTANEOUS CONCEPTION BASED ON SEMEN PARAMETERS IN FERTILE AND SUBFERTILE MEN
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Accurate prognosis of male fertility based on semen measurements is still not straightforward. This study was designed to identify the best predictors of fertility and to develop a multiple regression model predicting fertility using selected parameters of semen analysis. The predictive value of standard semen parameters and selected functional tests were studied in 113 fertile men and in 109 subfertile men whose spouses had a normal infertility workup. Individual semen parameters were evaluated using receiver operating characteristic curve. Logistic regression based on linear functions of analyzed sperm parameters was used to predict the chance of spontaneous conception. Logistic regression modeling revealed that the best prediction of spontaneous conception was obtained using 12 semen parameters: sperm concentration, total progressive motility (A+B), motility grade C or D, normal sperm morphology, defects of: head, acrosome, midpiece and tail, spontaneous acrosome reaction, hypoosmotic swelling test, and acid aniline blue test. This mathematical model reached 90.3% accuracy in predicting in vivo conception and 90.8% for its lack. A satisfactory prediction of male fertility was also obtained using only four semen measurements: sperm concentration, total progressive motility (grade A+B), normal morphology, and HOS test; this model correctly identified as fertile 84.1% of those who conceived and identified as subfertile 88.1% of those who did not achieve pregnancy. In conclusion, basic semen analysis and selected functional tests of sperm provide important information regarding probability of future pregnancy.