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Evaluation of computer-assisted semen analysis (CASA) with IDENT stain to determine sperm concentration

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This study was undertaken to compare a new fluorescent stain-based computer-assisted semen analysis (CASA) system (IDENT) for determining human sperm concentration to the manual hemacytometric method and to conventional CASA (CASA-CONV). Normal healthy semen donors as well as patients provided samples that were evaluated for sperm concentration with the CASA-IDENT method, the hemacytometer method, and CASA-CONV. Each field was examined visually to determine the sources of overcounting and undercounting for the two CASA methods. Four ranges of sperm concentration were examined: 0-10, > 10-30, > 30-100, and > 100 x 10 (6)/ml. The main outcome measures were sperm concentration, debris counted as sperm, and missed sperm. Our results showed that significantly more debris was counted as sperm and more sperm were missed with CASA-CONV than CASA-IDENT. As the sperm density increased, so did the number of counting errors for the CASA-CONV system. The error rate was much greater using CASA-CONV (12.1 +/- 42.2%) than with CASA-IDENT (0.4 +/- 0.7%) when compared to hemacytometer counts (P = 0.068). We conclude that the CASA-IDENT method of sperm counting is highly accurate and less time-consuming when compared to the hemacytometer method. There are significant differences in the amount of debris counted as sperm and number of missed sperm between CASA-CONV and CASA-IDENT with varying sperm density. With both parameters, the counts are more accurate using the CASA-IDENT method.

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