REVIEW

Operational standards for CASA instruments

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Computer-aided sperm analysis (CASA) technology is 7 years old. Over 120 papers have been written that verify the technology or apply it in basic and clinical studies. Most of the technical problems with CASA, such as the dependence of velocity on video frame rate, inaccuracy of count and percent motility for low- and high-concentration specimens, parameter dependence on the number of frames analyzed, sensitivity of the subjective threshold setting, confusion over the presence of debris, and different implementations of algorithms across instruments, still persist. A critical review of the literature reveals that no standard practices are followed within or across instruments. Moreover, no standards have been embraced or recommended by professional societies. Despite its potential to provide objective measurements of specimen and individual sperm parameters, and to automate the laboratory semen analysis, the promise of CASA has not been fulfilled. Unless laboratory medicine defines instrument performance and laboratory standards and co-operates with industry to achieve these goals, CASA technology may remain a research curiosity. This outcome is especially worrisome in the context of increasing requirements for laboratory accuracy, precision, standardization, and accreditation under the Clinical Laboratory Improvement Act of 1988.

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