Validation of the sperm class analyser CASA system for sperm counting in a busy diagnostic semen analysis laboratory

CHEY G. DEARING, SALLY KILBURN & KEVIN S. LINDSAY

1 Andrology Laboratory, Hammersmith Hospital, Imperial College NHS Trust, London, UK and 2 School of Health Sciences and Social Work, Portsmouth University, Portsmouth, UK

Abstract
Sperm counts have been linked to several fertility outcomes making them an essential parameter of semen analysis. It has become increasingly recognised that Computer-Assisted Semen Analysis (CASA) provides improved precision over manual methods but that systems are seldom validated robustly for use. The objective of this study was to gather the evidence to validate or reject the Sperm Class Analyser (SCA) as a tool for routine sperm counting in a busy laboratory setting. The criteria examined were comparison with the Improved Neubauer and Leja 20-μm chambers, within and between field precision, sperm concentration linearity from a stock diluted in semen and media, accuracy against internal and external quality material, assessment of uneven flow effects and a receiver operating characteristic (ROC) analysis to predict fertility in comparison with the Neubauer method. This work demonstrates that SCA CASA technology is not a standalone ‘black box’, but rather a tool for well-trained staff that allows rapid, high-number sperm counting providing errors are identified and corrected. The system will produce accurate, linear, precise results, with less analytical variance than manual methods that correlate well against the Improved Neubauer chamber. The system provides superior predictive potential for diagnosing fertility problems.

Keywords: Computer-assisted semen analysis, validation, semen analysis, sperm count, sperm class analyser

Human Fertility, 2013; Early Online: 1–8
© 2013 The British Fertility Society
ISSN 1464-7273 print/ISSN 1742-8149 online
DOI: 10.3109/14647273.2013.865843