

NORMAL SPERM MORPHOLOGY ASSESSMENT BY SQA-V ANALYZER AND MANUAL METHOD: A COMPARISON OF 2 METHODS

Rakesh K. Sharma, Tamer M. Said, Sajal Gupta, Sudeep Bansal, Arjun t. Sundaram, Karen Seifarth, Lora Cordek, Ashok Agarwal
Cleveland Clinic Foundation, Cleveland, OH

Introduction and Objective: Manual assessment of sperm morphology is subjective and affected by various factors such as the fixation and staining techniques. The objective of our present study was to compare the normal morphology results obtained by the automated SQA-V analyzer and by the manual method.

Materials and Methods: The semen samples of 50 healthy subjects were collected according to the WHO manual (4th edition) guidelines and analyzed for percent normal morphology under the microscope by two independent operators and using automated sperm quality analyzer (SQA-V; Medical Electronic Systems, Ltd., Caesarea Industrial Park, Israel). For the manual assessment, air-dried smears were stained by Diff-Quik method and scored for normal morphology according to WHO criteria (3rd edition) criteria. The percentages of normal morphology obtained manually by two operators were averaged. The SQA-V analyzer settings were adjusted to correspond to the WHO morphology criteria. The disposable capillaries of the SQA-V device were filled with 600 μ L of liquefied semen sample. The analyzer was operated according to the user guide and the onscreen instructions. The results were evaluated statistically using ROC analysis. Precision of both automated and manual methods was evaluated from the duplicate results by comparison of averaged coefficients of variation (CV).

Results: The automated morphology results were categorized as true positive, true negative, false positive and false negative values versus averaged manual results using 30% cut-off recommended by WHO (3rd edition) manual. Comparison using receiver operated characteristics (ROC) of the normal morphology results reported by the automated sperm quality analyzer SQA-V with the data obtained manually demonstrated a high level of sensitivity (88.9%) and positive predictive value (82.1%). The lower specificity (50.0%) and negative predictive value (63.6%) can be further improved by increasing the number of cases above the 30% cut-off value. Coefficients of variation for the automated and manual normal morphology assessment were found to be 2.7% and 14.4% respectively.

Conclusion: High sensitivity and positive predictive value of normal morphology reported by the SQA-V analyzer demonstrates the ability of this instrument to accurately detect the abnormal cases for morphology screening. The SQA-V device provides more precise and rapid morphology results as compared to the manual method.

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