TECHNICAL BULLETIN: REASON for ASSESSING WBC LEVELS on the SQA-V
Thursday, February 6, 2014

BACKGROUND:

The SQA-V technology for assessing sperm concentration is based on the principle of spectrophotometry coupled with software filters that eliminate 'background' factors that can influence the SQA-V results.

OVERVEIW:

It is well known that a semen ejaculate contains cells other than spermatozoa (1). These include epithelial cells from the genitourinary tract, as well as leukocytes (WBC) and immature germ cells (2). The presence of these non-sperm cells in semen may be indicative of testicular damage (immature germ cells), pathology of the efferent ducts (ciliary tufts) or inflammation of the accessory glands (leukocytes) (1).

These non-sperm cells, along with seminal plasma are all considered 'background' factors that interfere with the accurate assessment of sperm concentration using spectrophotometry technology. When the SQA-V assesses sperm concentration, the 'background' is subtracted by the software in order to eliminate its impact on the final and accurate assessment of sperm concentration. The normal SQA-V algorithm compensates for 'normal' levels of 'background' which are seen in most semen. However, abnormal levels of 'background' related to elevated WBC concentration and seminal plasma compounds associated with inflammation require a different algorithm that compensates for this. Hence, the operator is asked to assess for the level of WBC's (abnormal WBC is the most contributing background factor) and select < 1 M/ml (normal) or ≥ 1 M/ml (abnormal) in the SQA-V PATIENT DATA ENTRY SCREEN in order to activate the appropriate algorithm required to accurately measure the sample's sperm concentration.

INSTRUCTIONS:

WBC levels in semen can be tested using one of the following procedures:

- Using QwikCheck™Test Strips - recommended (please refer to the SQA-V User Guide Version 2.60 I-Button, Appendix 7: Measuring WBC's in Semen).
- Using the SQA-V visualization screen or the V-Sperm and visually/manually assessing the sample for WBC's (please refer to the SQA-V User Guide Version 2.60 I-Button, Appendix 4: Counting Cells using the SQA-V Visualization System and Appendix 7: Measuring WBC's in Semen).

MANUFACTURER'S RECOMMENDATION:

WBC assessment should be conducted on FRESH and WASHED semen samples and the results entered in the SQA-V PATIENT/SAMPLE DATA ENTRY screen **PRIOR** to running automated semen analysis on the SQA-V and before any sample treatment with chymotrypsin or any other agent (enrichment, washing, dilution, etc.).

REFERENCES:

1. WHO laboratory manual for the examination and processing of human semen - 5th ed., *World Health Organization 2010*.
2. Johanisson E et al. (2000). Evaluation of "round cells" in semen analysis: a comparative study. *Human Reproduction Update,* **6:**404-412.

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