

## Poster Abstracts

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### Cytologic diagnosis of inflammatory agents in sperm sediment of urologic patients: testing of a new digital system

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#### Objectives

Recently, the examination of the sediment of the sperm in male patients with poorly defined urogenital discomfort has gained clinical acceptance. Because the classic examination of the urine of patients and their sexual partners often remained inconclusive, frustration in patients and physicians alike are common. Therefore, the microscopic examination of the ejaculate sediment has proven to be critical in establishing a diagnosis. To further improve diagnostic accuracy, a special digital system was developed for the cytological examination of the sample semen sediment and tested in this study.

#### Materials and Methods

Study participants were 787 men of two clinical hospitals in Moscow / Russia between 2010 and 2015. All men had clinical complaints suggesting urogenital infections. In their female sexual partners an abnormal vaginal flora had been diagnosed. In all of the 787 patients the sediment of the sperm samples were examined by using a newly developed digital system, "Vision Cyto Sperm Sediment (VCSS)" based Vision Sperm Sediment (VSS) algorithm. For comparison, the following tests were performed simultaneously on the same samples: microbiological cultures, light microscopy of stained specimen (May-Grunwald-Giemsa) and polymerase chain reaction (PCR) of the plasma semen, of prostatic secretions, and of urethral discharge samples.

#### Result

In 98.2% of patients the sperm sediment disclosed a pathologic microscopic finding such as a species of *T.vaginalis*, *Candida*, *Gardnerella*, *Mobiluncus*, or other mixed flora, cells with signs of HPV, CMV, HSV infection, epithelial inclusions morphologically suggestive of chlamydia, foreign bodies or other cells normally not present in sperm sediment. The diagnostic information obtained with other tests applied in the plasma semen, in prostatic secretions, and urethral discharge samples was not proven to be significant. The accuracy of the VSS algorithm was evaluated by calculating the risk indicator values for the same patient derived from several fundamentally different microscopic images. According to the Korfeld method the risk was 0,6 – 1,9 %.

#### Conclusion

VCSS is a newly developed unique digital system for increasing the diagnostic accuracy of the microscopic examination of sperm sediment samples; it has a risk indicator value of less than 2%. This value is sufficient for a reliable initial diagnosis for research results. In questionable cases, the presumptive diagnosis has to be confirmed or excluded by additional testing.