P063

BATTERIOLOGIA

EVALUATION OF A DOUBLE CUT-OFF FOR THE MICROBIOLOGICAL SCREENING OF URINE SAMPLES ON SEDIMAX AUTOMATED MICROSCOPY ANALYSER

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INTRODUZIONE

The microbiological screening of urine using highly automated instruments allows only samples that have certain characteristics, reducing the time for reporting negative samples and allowing resources to be focused on clinical impact samples.

METODI

In the period from 11/11/2018 to 05/03/2019, 475 non-selected urine samples were evaluated, 271 from female and 204 from male patients. We compared the results of some urinary sediment parameters provided by the Sedimax automated instrument (A. Menarini Diagnostics, Florence) with uroculture on differential chromogenic medium BD Chromagar Orientation (Becton Dickinson Sparks, MD, USA) used as a gold standard. We initially identified a screening cut-off using the critical parameters of bacterial cells (BAC) and white blood cells (WBC), obtaining: sensitivity 96.49%, specificity 66.76%, VPN 98.37% and VPP 47.83%. Subsequently, we retrospectively analyzed the samples with positive results in order to identify and relocate falsely positive samples due to contamination, colonization, poor pre-analytical quality and any existing treatment. We finally established and programmed on Sedimax software two separate cut-offs, differentiated by sex, since the distribution of false positives in the two populations is significantly different.

RISULTATI

Establishing two differentiated screening cut-offs for female patients (positive for values of: 36 ≤ BAC <56 and WBC ≥ 13, or BAC ≥ 56, or BAC <36 and WBC ≥ 140) and male (positivity for values of : 23≤ BAC <48 and WBC ≥ 13, or BAC ≥ 48, or BAC <23 and WBC ≥ 100) we have improved analytical performance: sensitivity (97.37%), specificity (67.04%), VPP (48.26%) and VPN (98.78%).

CONCLUSIONI

Our analysis suggests that the Sedimax automated analyser, optimized through the choice of a specific dedicated algorithm, has successfully achieved the goal to become an efficient urine analysis screen for negative samples. Moreover, it provides important support for uroculture reading, allowing to optimize the diagnostic process of urinary tract infections, while contain costs.