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ePoster Viewing
Laboratory automation

Implementation of blood and various body fluids for inoculation using an automated specimen inoculation system

Qute Choi¹, Jong Wan Kim², Hyun Jin Kim¹, Gye Cheol Kwon¹, Sun Hoe Koo^{*1}

¹*Chungnam National University College of Medicine, Department of Laboratory Medicine, Daejeon, Korea, Rep. of South*

²*Dankook University College of Medicine, Department of Laboratory Medicine, Cheonan, Korea, Rep. of South*

Background: The process of plate streaking has been automated to improve the culture readings and workflow of microbiology laboratories. Although there are many evaluation reports about the inoculation of urine samples, few evaluations have been reported for blood or other body fluids. In the present study, we evaluate automatic inoculation of various samples including, blood culture and body fluid, using automated inoculating instrument, Previ Isola® (bioMérieux, France).

Material/methods: Blood culture samples, showing positive signals on the automated microbial detection system, body fluid, and urine samples were collected. All samples were inoculated on both sheep blood agar and MacConkey agar using two methods, automated and manual method. Four plates were created for each sample, and we read all plates at 18 and 24 hours after incubation. We compared two methods according to culture results, number of colony counts and hands-on time required for inoculation.

Results: A total of 240 non-duplicate samples (54 blood culture, 44 body fluid, 142 urine) were collected and inoculated. In culture results, total concordance rate of two methods was 95%. In blood culture samples, 52 of 54 samples (96%) showed concordant culture results. In total 44 various body fluid (13 Ascitic fluid, 9 cerebrospinal fluid, 7 bile fluid, 6 pleural fluid, 4 closed pus, 4 joint fluid, 1 pancreatic fluid), culture results of 42 samples (95%) were concordant between two methods. In 135/142 urine samples (95%), concordant culture results were obtained with the two methods. In number of colony counts, total 16 samples (1 blood culture, 1 body fluid, 14 urine) showed discordant results. The shortened hands-on time using Previ Isola® was average 7m18s per 10 samples.

Conclusions: We report the first clinical evaluation of Previ Isola® automated specimen inoculation for blood culture and various body fluid samples. Inoculation by Previ Isola® showed relative good concordance with manual method, improved culture quality, and shortened hands-on time.