P1024
Paper Poster Session
Culture-based diagnostic bacteriology

Comparison of the novel blood culture system DL-Bt112TM with BacT/Alert 3DTM

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Background: Blood cultures are the main diagnostic laboratory tool to detect bloodstream infections. In many clinical microbiology laboratories utilize automated blood culture systems to isolate infectious agents from blood samples. The diagnostic performance and time-to-detection (TTD) values of the novel automated blood culture system, DL-Bt112^{TM} (DL) was compared with BacT/Alert 3D^{TM} (B3D) by using clinical samples.

Material/methods: Total of 356 blood culture sets (178 set for each system) were evaluated for 6 months of period in a university hospital. Two sets of blood culture samples (one for DL and one for BacT/Alert) were drawn from intensive care unit patients who were suspected to have bloodstream infections. A set was consisting of an aerobic and an anaerobic blood culture bottle. The samples were immediately sent to laboratory and loaded to respective systems. Vitek®2 automated system (BioMerieux) was used for identification of the isolated bacteria.

Results: The number of the positive bottles, which were detected by both systems, was 47. Both systems detected 294 negative bottles. Isolates from 39 positive bottles out of 47, were interpreted as agent of blood stream infection (BSI), whereas 8 of them were agent of contamination (Table). Overall recovery rates of the systems were 79,03% for the DL and 96,77% for B3D. When TTD values were evaluated, B3D was significantly faster for BSI isolates (p<0,005). *K. pneumoniae* was the most common agent isolated (n=17) and B3D gave positive signals average 105,6 minutes earlier than the DL (p<0,005).

Conclusions: Before we used and changed a novel system we should know how was the performance of the novel system. The results of this study suggest that DL system has lower recovery rates and longer TTD values compared to B3D automated system. Any potential laboratory to use DL system should consider relatively low recovery rates and long TTD values. After limitations of this study (such as low sample numbers, use of antimicrobial drugs) are investigated in detail, use of the novel DL systems may be argued for clinical laboratories.

Table. Comparison of recovered bacteria in the DL and B3D systems

	N. of isolates detected in	***p* value**

		Both Systems	Only BacT/AlerT	Only DL	
Gram (-)	*K. pneumoniae*	17	1	0	1.0
	P. aeruginosa	2	0	0	1.0
	P. mirabilis	1	1	0	1.0
	E. cloaca	2	0	0	1.0
	E. coli	5	2	0	0.5
Gram (+)	*E. faecium*	4	0	0	1.0
	S. aureus	2	1	0	1.0
	S. epidermidis	10	2	2	1.0
	S. hominis	1	5	0	0.453
	Corynebacterium spp.	1	1	0	1.0
Fungi	*C. albicans*	2	0	0	1.0
Positive Bottles		47	13	2	0.007
Negative Bottles		294	2	13	0.007
Recovery Rate (%)			96,77	79,03	