

An investigation of the microbiological contamination of Ultrasound Probes: Evaluation of cleaning methods to reduce it

Joynerabraham M

Tirunelveli Medical College

E-mail: drsvmicro@yahoo.co.in

Introduction

Nosocomial infections develop in hospitals leading to significant morbidity and mortality. The ultrasonogram is the most commonly used imaging modality in tertiary care hospitals. Ultrasound equipment comes into direct contact with patients and practitioners during scanning procedures, enabling it to be a potential vehicle for the spread of nosocomial infections. The prevention of disease transmission between patients is of primary importance in sonography department. The aim of the present study is to assess the microbiological contamination of the ultrasound probes and to formulate effective decontamination guidelines for the ultrasound probes.

Materials and methods

After obtaining approval from Institutional Scientific and Ethics Committee, two ultrasound machines were sampled over a period of two months at the Department of Radiology at Tirunelveli Medical College Hospital. The swabs were taken from unclean probe of each machine after each scanning procedure and were processed in the Microbiology department. The above procedure was repeated after single and double paper wipe cleaning of the probe. The isolates were identified using standard techniques and antibiotic susceptibility testing was carried out as per CLSI guidelines. The potential for the ultrasound coupling gel to serve as a

culture medium for bacterial growth was also investigated.

Results

Out of 50 swabs, 36 (72%) were culture positive and 14 (28%) were bacteriologically sterile. A total of 37 bacterial isolates were recovered from the 36 culture positive patients. *Klebsiella* species (93.75%) constitutes the predominant isolate followed by *Acinetobacter* species (6.25%) (Table-1). The average CFU transmitted by the unclean probes was 74.56, for the probes cleaned by single paper wipe was 6.71 and for the probes cleaned by double paper wipe was 0.76. There is a statistical significant difference ($P < 0.001$) between unclean probes and after single and double paper wipe cleaning procedure (Figure 1&2). The potential for the ultrasound coupling gel to serve as a culture medium for bacterial growth was evaluated and found that the ultrasound coupling gel can support bacterial growth.

Conclusion

The results of our study indicate that our minimal standard of probe decontamination consists of wiping the probe with soft paper after each procedure until it is visibly clean.

Keywords: Nosocomial infections, Ultrasound Probes, Ultrasound Coupling Gel, Decontamination.