A-05 Severe bacterial contamination of hospital nebulizers due to inadequate cleaning

P L Ariyananda, A de S Nagahawatta, M A K Manabarana, A M S A Liyadipita,
U K A Wijayantha
Dept of Medical Microbiology, Faculty of Medicine, University of Ruhuna, Galle

This study was carried out at the General Hospital (Teaching), Karapitiya, Galle to assess the extent of bacterial contamination of nebulizer systems and respiratory solutions and to identify the contaminating bacteria in nebulizer systems. We studied 13 nebulizers that were used in different wards of the hospital during the period of study. Bacterial sampling was carried out on: (a) Face mask (b) Mouth-piece (c) Wall of the nebulizer chamber (d) Residual volume in the nebulizer (e) Aerosol spray from the nebulizer (f) salbutanol respiratory solution from each ward.

Ten nebulizer chambers (76%) were positive for *Pseudomonas aeruginosa,* one was positive for both *Pseudomonas aeruginosa* and *Klebsiella* spp. and another was positive for *Morexella* spp. Same organisms were isolated from nebulizing fluid from the chamber as well as the aerosol they generated. Face masks and mouth-pieces yielded bacterial growth in all 13 items studied. The organisms included *Staphylococcus aureus, Staph albus, Pseudomonas aeruginosa, Klebsiella* spp and *Enterobacter.* Four wards had salbutamol respiratory solutions that grew *Pseudomonas aeruginosa.* The solutions in the remaining wards did not show any bacterial growth.

The study was repeated after washing the face mask, the mouth-piece and the nebulizer with soap water followed by air drying. We found a considerable reduction in the extent of bacterial colonization.

None of the wards had a practice of washing the nebulizer chamber. The masks and the mouth pieces were washed by various methods.

As our findings show a significant reduction in bacterial contamination of nebulizers after washing with soap and water we recommend washing nebulizers and the attached aerosol delivery system in this manner and air drying before it is used again.