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Prevalence and Transmission of Nosocomial Pathogens in Intensive Care Units of Tertiary Health Care Facilities

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The infections caused after 24 hours while staying inside the hospital are called hospital acquired infections (HAIs) or nosocomial infections (NIs). HAIs are maximum in developing countries which lack facilities and methods to reduce NIs. About 70% NIs are seen fewer in developed countries. It has been identified that 5-10% of NIs were from developed countries like North America and Europe counties, whereas in Asia, Africa and Latin America 40% of patients in hospital have hospital acquired infections. In present research nosocomial pathogens in intensive care units (ICUs) of the tertiary health care hospital from Abbottabad city. The study is divided into two portions. i.e. 1st samples were collected from patient's body aspirates in ICU and 2nd environmental samples include surfaces and air sampling from ICU. From body aspirates (urine, sputum, and blood and pus samples) like, *Escherichia coli, Pseudomonas aurogenosa, Staphylococcus epidermitis, and Staphylococcus aurous,* and *Klebsella spp* were identified. Most of the nosocomial species were from pus in female samples 76.2% and 74.44% from male pus. Second largest amount were from sputum samples 44.6% in male, 40.2% in female samples. From urine and 16.42%, 30% and 15% were found from male urine, female sputum, and female blood respectively. Environmental samples include *Escherichia coli,Staphylococcus aurous* and *Apergillusspecie*. These microbes were studied before and after cleaning practices of the ICUs. All of these micro-organisms were identified from floor, air and different instruments present inside the ICU of the hospital. These microbes were cultured on Nutrient agar (NA), mannitol salt agar (MSA), eosin methylene blue agar (EMB) and sabouraud dextrose agar (SDA). Large numbers of *Staph aureus, E. coli* and *Apergillus specie* were identified from floor, air and different instruments. On NA, EMB agar and SDA the reduction rate of bacteria are shown between Air contamination, lab coat and patient bed $18.51 \times 10^5 <$ NC, $5.57 \times 10^5 < 18.72 \times 10^5$, $5.87 \times 10^5 < 16.86 \times 10^5$ and $3.71 \times 10^5 < 9.14 \times 10^5$, 1st instrument, floor and 3rd instrument like, $2.75 \times 10^4 < 8.76 \times 10^4$, $4.50 \times 10^4 < 9.6 \times 10^4$ and $3.10 \times 10^4 < 5.3 \times 10^4$ and air, floor samples and 3rd instrument NC=NC, $45.76 \times 10^4 < 52.6 \times 10^4$ and $9.90 \times 10^4 < 13.25 \times 10^4$ respectively, before and after cleaning practices of ICUs. These microbes were not fully cleared after cleaning because of the use of only water instead of any disinfectant usage.