The Bacteriostatic and Bactericidal Effect of Commonly Used Disinfectants in Mukalla City- Hadramout Hospitals against Nosocomial Pathogens

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Introduction
- Medical service centers (including hospitals) are considered the safe environment to receive treatment and health care.
- However, hospitals may be a cause of infections known as health care-associated infections (HAIs).
- HAIs are a global problem (1.7 million infections annually and an estimated mortality rate of 99,000 deaths)(Rutala and Weber, 2013).
- Infection rates in developing countries reach 5%-10% compared to developing countries (e.g. Yemen) which have an infection rate of 65.4% (Al-Shami and Al-Hamad, 2018).
- Common hospital infections: urinary tract infection, respiratory infection, septicemia and surgical wound infection.
- Bacteria are the most prominent cause of HAIs in addition to other factors.
- To combat the spread of infection and get rid of its causes → Strategies and methods of infection control were developed.
- Chemical compounds (disinfectants) are one of the commonly used ways to break the chain of infection.

Methodology
- Preparation of bacterial suspension
  - The bacterial suspension was prepared according to the instructions of the Clinical and Laboratory Standards Institute (CLSI, 2015).
  - The McFarland standard of 0.5 was used as a reference to compare the bacterial suspension turbidity in order to adjust the approximate cell density of 1-2 X10^8 colony-forming units (C.F.U) per milliliter.
  - Finally, 0.5 ml of the bacterial suspension was added to all tubes of diluted disinfectants within 15 minutes of preparation sealed with tin and incubated at 37°C under aerobic conditions for 24 h.

Serial dilution of the disinfectants
- By using the tube dilution method, a two-fold serial dilution of each disinfectant was prepared according to the instructions of the Clinical and Laboratory Standards Institute (CLSI, 2015).
- The undiluted disinfectant concentration at tube No. 1 was considered as 100%. Serial disinfectant dilution was calculated according to the formula:
  
  \[ V_1 \times C_1 = V_2 \times C_2 \]

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Results

Conclusions

References