

Awareness of OT Fumigation Among PG Surgical Residents.

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Abstract:

Operating theatres (OTs) demand a sterile environment to minimize surgical site infections. Fumigation, a well-established sterilization method, plays a vital role in achieving this aseptic state. However, maximizing its effectiveness hinges on proper implementation and awareness among healthcare professionals. This study aims to assess the level of awareness and knowledge of OT fumigation among surgical and anaesthesia junior residents. **Materials and Methods:** This is a cross-sectional observational study in which data collection was done using electronic questionnaire (Google forms). **Results:** Total sample size of our study was 66. Our study showed that 1 (1.5%) of the population didn't know the importance of OT fumigation and 3 (4.5%) population were not aware of the purpose of OT fumigation. 57(86.4%) of our study population have observed the process of OT fumigation under process while 9 (13.6%) population have not. **Conclusion:** In conclusion, fostering awareness of OT fumigation is crucial. By educating healthcare professionals, especially residents, on its proper use, limitations, and alternatives, we can optimize patient safety and minimize the risk of surgical site infections. This ongoing dialogue ensures aseptic practices remain a top priority within operating theatres.

Key Words: Operation Theaters, Fumigation, Awareness, PG Residents, Sterilization.

Introduction:

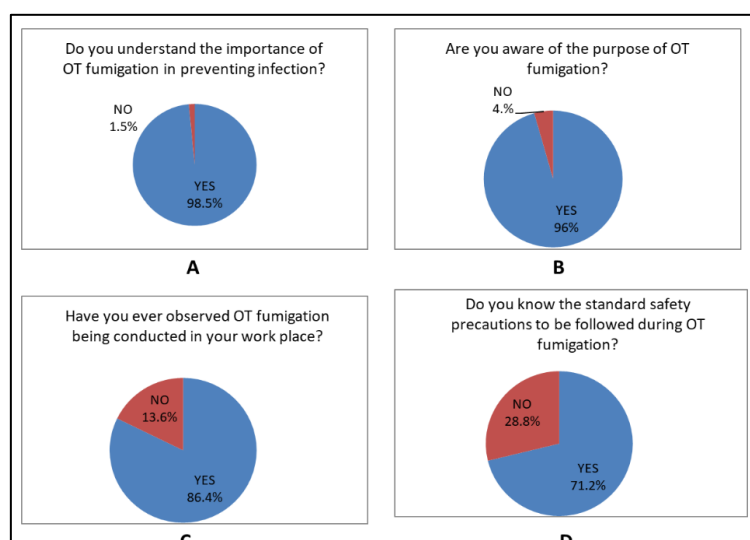
Disinfectants are essential for preventing infections around the world. They act as a powerful defense against the spread of germs that cause hospital-acquired illnesses and help control major disease outbreaks^[1]. Since infections have many contributing factors, keeping operating rooms clean is critically important to stop them from starting and spreading. Infections in wounds are a very common problem for patients in hospitals, ranking second only among other hospital-spread illnesses^{[2][3]}. Surgical procedures can have serious side effects, causing patients to become unwell. In the worst cases, especially when complications happen deep within the surgical area, the morbidity can be as high as 77%^[4]. Even with modern medical advancements, there's a growing concern about germs spreading in hospitals, particularly in operating rooms. This rise in hospital-acquired infections (nosocomial infections) puts not just patients at risk, but also healthcare workers like nurses and doctors^[5]. Maintaining a sterile operating theatre environment is paramount in controlling a significant portion of exogenous nosocomial infections. Fumigation, a well-established method for achieving aseptic conditions

in areas requiring microbiological sterility, can be a valuable tool^[6]. Formaldehyde vapor fumigation remains a widely employed technique due to its cost-effectiveness^[7]. However, it's crucial to ensure all disinfectants utilized within the hospital setting are freshly prepared and possess adequate potency for optimal efficacy^{[8][9]}. Numerous studies have established patients as a significant reservoir of microorganisms within the healthcare setting. Consequently, environmental surfaces in close proximity to patients exhibit high levels of contamination. These pathogens readily disseminate through fomites, which are frequently touched objects such as bedside rails, door knobs, curtains, sinks, and medical equipment^[10]. Additionally, healthcare worker attire (gloves, gowns), patient charts, and even the patients' own integument (skin) can become colonized with these microorganisms^[11]. Suchitra et al. demonstrated a significant improvement in knowledge and awareness of nosocomial infection prevention strategies among nursing staff following education on standard precautions and universal precautions^[12].

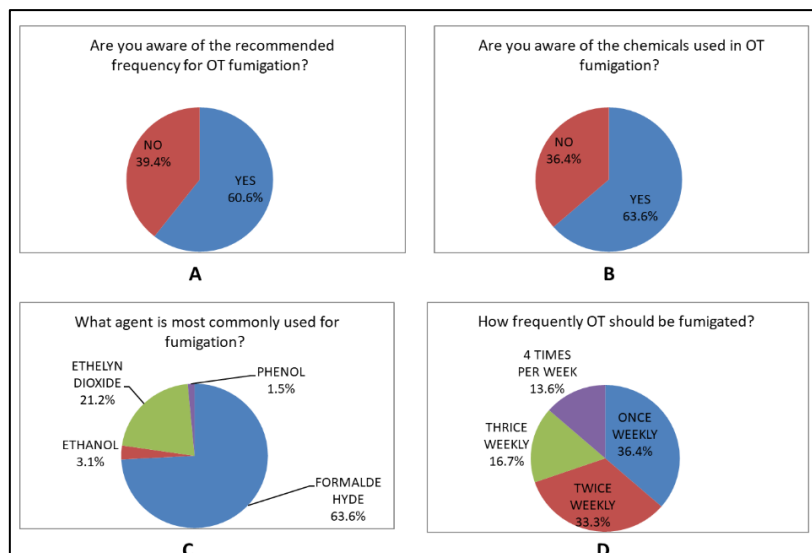
Materials and methodology: This is a cross-sectional observational study conducted in a rural tertiary care hospital. The data was collected in between 1st March 2024 till 31st April 2024. A structured questionnaire was used as the study tool. The questionnaire contained 11 questions which analyzed level of knowledge and awareness of importance of OT Fumigation among junior residents of anaesthesia and surgical branch. The questionnaire was distributed among the junior residents doing post graduation from the rural tertiary care hospital. The data collection was performed using electronic questionnaire (Google forms) that was distributed to the residents. Only the junior residents doing post graduation in anaesthesia and surgical branches were included in the study. Junior residents from the nonsurgical branch, senior residents and professors were not included in the study.

Results:

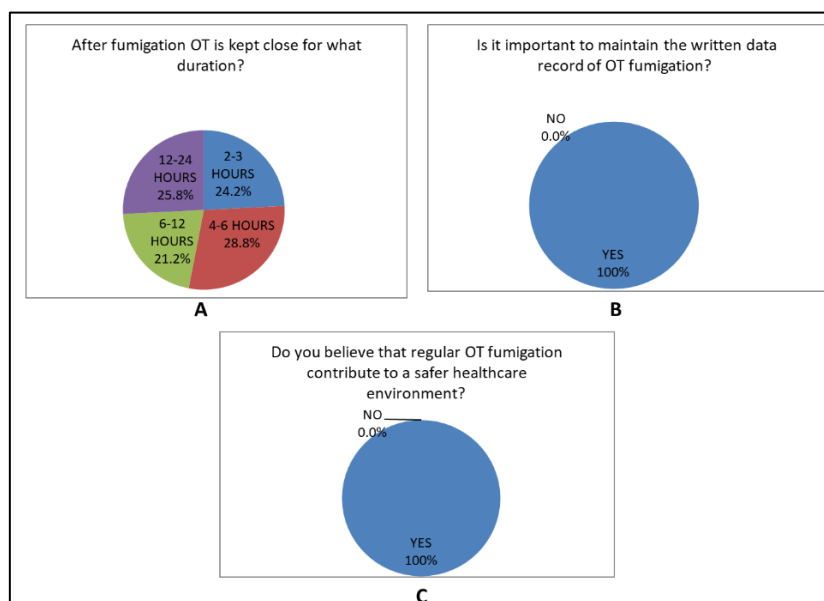
A total of 66 junior residents completed the questionnaire. Post graduate Residents of anaesthesia and surgical field attempted the study.



Graph 1: Graph 1A: Represents the understanding of importance of OT fumigation in prevention of infection among the study population. Graph 1B: Whether the study population have observed the OT fumigation in their work place. Graph 1C: Whether the study population is aware of purpose of OT fumigation. Graph 1D: Whether the study population knows the standard safety precautions to be followed during OT fumigation.



Graph 2: Graph 2A: Whether the study population is aware of recommended frequency of OT fumigation. Graph 2B: Whether the study population is aware of chemicals used in OT fumigation. Graph 2C: Whether the study population is aware of most commonly used agent for OT fumigation. Graph 2D: Whether the study population is aware of frequency of OT fumigation.



Graph 3: Graph 3A: Whether the study population is aware of duration of closure OT after fumigation. Graph 3B: Whether the study population is aware of the importance of written data

record of OT fumigation. Graph 3C: Whether the study population is aware if regular OT fumigation contributes to safer health care environment.

Discussion:

OT fumigation remains a valuable tool in the fight against surgical site infections. However, maximizing its effectiveness hinges on continual education, adherence to safety protocols, and exploration of safer alternatives ^[13]. By fostering awareness and adopting best practices, healthcare facilities can ensure optimal patient safety while maintaining a sterile environment within their operating theatres. This survey yielded interesting findings regarding knowledge and awareness on fumigation procedure and material used among PG residents. Our study showed that 1 (1.5%) of the population didn't know the importance of OT fumigation and 3 (4.5%) population were not aware of the purpose of OT fumigation. 57 (86.4%) of our study population have observed the process of OT fumigation under process while 9 (13.6%) population have not. 47 (71.2%) of our study population is aware of standard safety precautions that needs to be followed. 40 (60.6%) study population was aware of recommended frequency for OT fumigation. 43 (63.6%) of study population was aware of chemicals being used in OT fumigation. Majority of population, 49(74.2%) were aware of the most commonly used chemical (Formaldehyde) in our OT fumigation. Only 24 (36.4%) study population was aware of correct frequency of OT fumigation. Only 17 (25.8%) study population were aware of the duration to close the OT post fumigation. While 66(100%) of the study population was well aware of the importance of keeping the written records of OT fumigation and that regular fumigation and sterilization of OT leads to better health care environment for the patients getting operated. In the present study majority of the participants were partially unaware of the knowledge on fumigation of the operation theatres. Disinfection is an important strategy in prevention and control of cross contamination between surfaces and patients by direct or indirect contact ^{[14][15]}. Healthcare settings are a strong platform for a fight against healthcare-associated infections HAIs. Noncritical environmental surfaces (e.g., bed rails, bedside tables and medical equipment that subsequently contacts patients like stethoscope and sphygmomanometer) are frequently touched by hands of health-care workers, potentially could contribute to secondary transmission by contacting ^[16]. HAI takes a heavy toll on patients and their families by causing illness, prolonging hospital stays, reducing the quality of life, increasing the potential of disabilities, increasing the resistance of the microbes to antimicrobials, as well as leading to excess costs and sometimes death of the patient. Education and training of healthcare workers about standard infection control, as well as strict adherence by healthcare staff and students to aseptic practice, can reduce the extent of risks of HAI ^[17]. Various studies suggest that that the training workshops have had a significant effect to improve awareness about hospital-acquired infections. It is therefore important to identify the gaps in the knowledge of the health care workers before the implementation of any training programme.

Conclusion:

While OT fumigation remains a valuable tool in the fight against surgical site infections, maximizing its effectiveness requires a strong foundation in its proper use. Our data support the need to urge further educational efforts to improve the knowledge and awareness among the PG residents. Our study was conducted only in one health care facility, therefore our results may not be comparable with other institutions with different practice of infection control.

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