

Knowledge, Attitude, and Practice Regarding Sterilization Among Interns and Health-Care Staffs in A Medical College in Muzaffarpur (Bihar): An Original Research

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ABSTRACT

Background: Sterilization in hospitals is a significant concern for both the medical and the general community. There has been an increase in many infectious diseases. Knowledge of the sterilization policy among hospital staff and their attitude towards sterilization and practice of basic principles and methods of sterilization methods go a long way in prevention of infectious diseases.

Aim and objectives: the aim of this study was to assess the knowledge, attitude and practices (KAP) regarding sterilization among interns, lab technicians and nurses of a medical college in Muzaffarpur (Bihar).

Materials and methods: A KAP study was conducted in a medical college in Muzaffarpur (Bihar). A total of 198 subjects were involved in this study. A self-administered questionnaire was given to each and every subject. Statistical Analysis: The collected data were subsequently processed and analyzed using SPSS statistical package version 19.0.

Results: 78 (39.4%) were female and 120 (60.6%) were males. Mean knowledge, attitude and practice score of all 198 subjects was 4.34 ± 1.287 , 3.80 ± 1.22 , and 5.36 ± 0.823 respectively.

Conclusion: In-service training is needed to improve, supplement, and update knowledge about different methods and techniques of sterilization. Sterilization is most important step in prevention of cross infection.

Keywords: Interns, KAP, lab technician, nurses, sterilization.

INTRODUCTION

Sterilization is a process by which complete destruction or killing of all microorganisms including bacterial spores is achieved. Prevention of infection and control is an important part of safe patient care. Concerns about the possible spread of blood-borne diseases, and the impact of emerging, highly contagious respiratory and other illnesses, require practitioners to establish, evaluate,

continually update, and monitor their infection prevention, control strategies, and protocols.^[1] Health-care professionals are at an increased risk of cross infection and its transmission while treating the patients. Surgical procedures frequently cause bleeding and exposure to infected blood, saliva, and aerosol are a known means of infectious disease transmission. Surgeons have to work in a pathogen-

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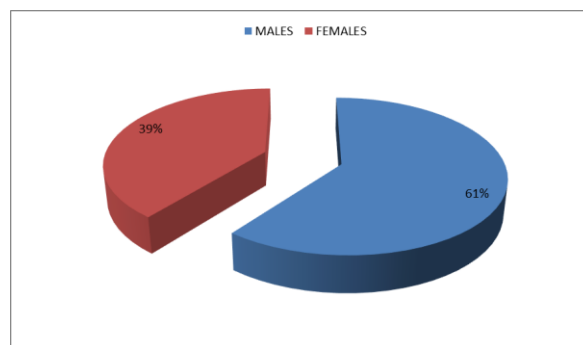
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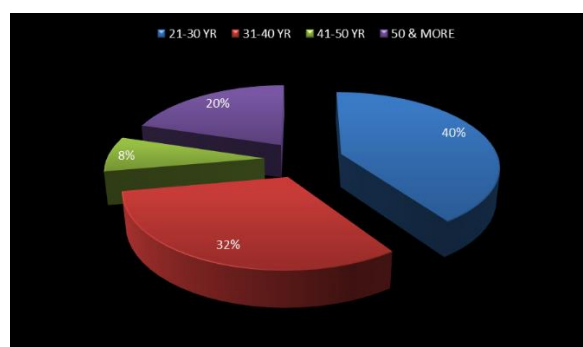
rich, contaminated environment, often dealing with blood. They are exposed to a variety of microorganisms present in blood and saliva, coupled with possible injury from the sharp instruments.^[2] While treating the patients, physicians become susceptible to various infectious diseases. Diseases such as hepatitis B and acquired immuno deficiency syndrome (AIDS) can spread through unsterile instruments. There are effective infection control procedures and universal precautions for hospitals and surgical operatories to prevent cross contamination, which should be practiced by doctors, interns and health-care staff including nurses, theater assistants, lab technicians, and sanitation staff of hospitals. To minimize the risk of cross infection in the hospitals, specific recommendations have been issued by professional health agencies. These recommendations include routine use of barrier techniques (gloves, masks, spectacles, etc.), heat sterilization of surgical instruments, and the universal precautions.^[3] The use of gloves, face mask, and spectacles has been reported to be important in preventing the three routes of transmission, namely doctor to patient, patient to doctor, and patient to patient in hospitals. Increased awareness about risks of transmission of infection through blood and saliva has led to increased use of protective barrier techniques and prevention of communicable diseases.^[4] Few studies have been done worldwide which shows gaps in the knowledge of some health-care staff regarding modes of transmission of infectious diseases. The awareness about the importance of sterilization in reducing the communicable diseases needs to be increased among medical faculty. There is also a pressing need to identify the areas where improvements can be made in hospital setup toward disinfection and sterilization practices. No study has been done till today in this part of Bihar. Hence this study was conducted to assess the knowledge, attitude and practice regarding sterilization in a medical college in Muzaffarpur (Bihar).

MATERIALS AND METHODS

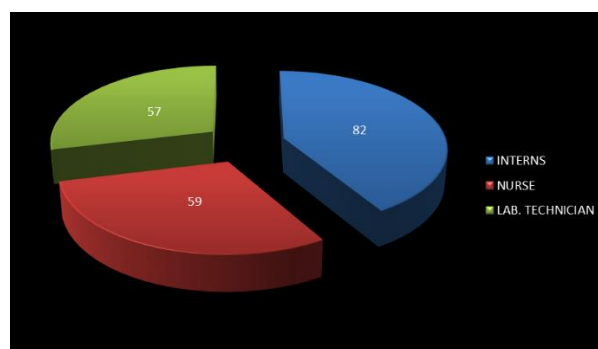
A knowledge, attitude and practice (KAP) study was conducted in a medical college in Muzaffarpur (Bihar). A total of 198 subjects were involved in this study. Subjects who agreed to participate in this study was only included. Informed consent was taken from each and every subject. Ethical clearance



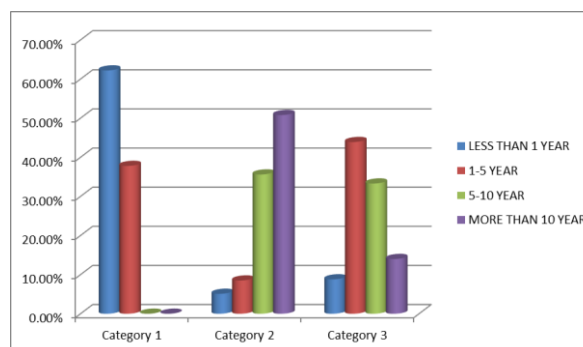
Graph 1: Gender wise distribution of subjects.



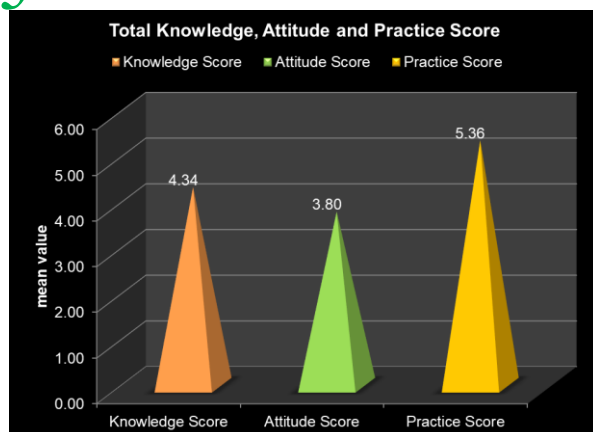
Graph 2: Age wise distribution of subjects.



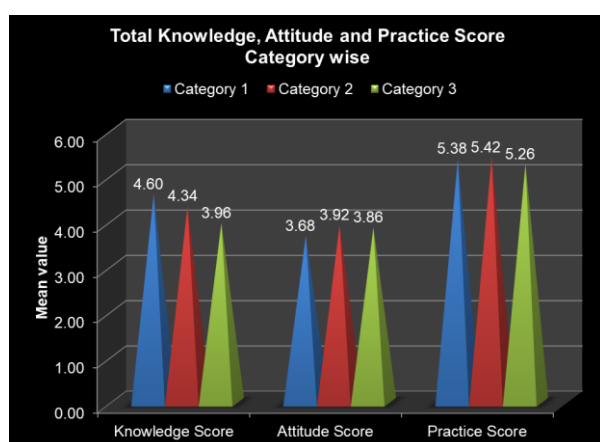
Graph 3: Category wise distribution of subjects according to their qualifications.



Graph 4: Distribution of subjects according to work experience.



Graph 5: Mean knowledge, practice and attitude score of all subjects.



Graph 6: Knowledge, practice and attitude score of all subjects in all categories.

was taken from institutional board when this study was conducted. The study participants included interns, lab technicians and nurses who deal with patients. Three categories were made. Category 1 included interns, category 2 included nurses and category 3 included lab technicians. A self-administered questionnaire containing 19 items was formulated in local language that included questions related to knowledge, practices and attitudes of subjects towards sterilization. In knowledge part, 6 questions were asked about types of sterilization, common techniques of sterilization, temperatures of autoclave, disinfection and knowledge regarding sterilization and disinfection. Attitude questions were about post operative infection control equipments like gloves, masks, protective eye wear, head cap, apron etc. Attitude questions also included how they cleaned their hand post operative or after cleaning blood swabs, cottons etc, whether they experienced

needle injury while using it, have they ever participated in autoclave sterilization technique or other sterilization programs. Six practice questions were mainly about use of gloves, protective eye wear, or face masks while handling blood, sputum, tissues etc, protection while treating human immunodeficiency virus infected patients, time to time regular training of health staff on sterilization and disinfection procedures. Participants were informed to attempt all the questions. After each subjects attempted all questions in each section of knowledge, attitude and practice, questionnaire was collected. Questionnaire elicited information on various socio demographic variables, such as name, age, sex, educational status, working experience, type of work and whether received any training of sterilization or not. The collected data was subsequently processed and analyzed using the SPSS statistical package version 19.0. Chi square test and one way ANOVA test was applied. P value less than 0.05 was considered to be statistically significant.

RESULTS

A total of 198 subjects participated in this study. Out of 198 subjects, 78 subjects were female and 120 subjects were males [Graph 1]. Age wise distribution of subjects showed that 80 (40.4%) subjects belonged to age group of 21 years to 30 years, 63 (31.8%) subjects belonged to 31 years to 40 years, 40 (20.2%) subjects were of age above 50 years whereas only 15 (7.6%) subjects belonged to age group of 41 years and above [Graph 2]. 82 (41.4%) subjects were interns, 59 (29.8%) subjects were nurse and 57 (28.8%) subjects were lab technicians [Graph 3]. 30 (50.8%) nurses had work experience of more than 10 years, 21 (35.6%) nurses had work experience of 5 years to 10 years, 5 (8.5%) nurses had work experience of more than 1 year whereas 3 (5.1%) nurses had work experience of less than one year. 25 (43.9%) lab technicians had work experience from one year to 5 years, 19 (33.3%) had experience of 5 years to 10 years whereas only 5 (8.8%) lab technicians were having work experience of less than one year [Graph 4]. 68 (82.9%) interns never had training regarding sterilization whereas 14 (17.1%) interns had training regarding sterilization. 35 (59.3%) nurses got training whereas 24 (40.7%) nurses never had training of sterilization. 42 (73.7%) lab technicians never had sterilization training. Out of

19 questions, 6 questions were asked to assess knowledge, 7 questions were asked to assess practice and 6 questions were asked to assess the attitude of subjects regarding sterilization. Knowledge score of interns was 4.60 ± 1.369 . 4.34 ± 0.976 was the knowledge score of nurses whereas 3.96 ± 1.375 was the knowledge score of lab technician [Graph 5]. Overall, mean knowledge score of all subjects was 4.34 ± 1.287 . Knowledge score of female (4.53 ± 1.053) was higher than males (4.22 ± 1.409). Attitude score of interns was 3.68 ± 1.422 . 3.92 ± 1.055 was the attitude score of nurses whereas attitude score of lab technicians was 3.86 ± 1.06 . Mean attitude score of all 198 subjects was 3.80 ± 1.22 . Attitude score of females was slightly higher than males. Practice score of interns was 5.38 ± 0.898 , nurses was 5.42 ± 0.814 and lab technicians was 5.26 ± 0.72 . Mean practice score of all subjects in all categories was 5.36 ± 0.823 [Graph 6]. Practice score too where females (5.40 ± 0.843) had slightly better practice score than males (5.33 ± 0.813). Knowledge score of interns when compared with nurses was not found to be statistically significant whereas when compared with lab technicians, knowledge score was found to be statistically significant. Attitude score of interns when compared with nurses and lab technicians was found to be not significant. Practice score of interns when compared with nurses and lab technicians were found to be statistically significant.

DISCUSSION

Receiving right education through right approach goes a long way in honing one's skills. In a professional set up, there could be many such techniques.^[5] Due to the nature of their profession, dentists and medical professionals should not forget the risk of treating patients with probability of infectious diseases. The health professionals fall in the very high-risk category with increased chances of coming in contact with some of the deadliest of the microbial world. Disease transmission among individuals has been a great concern in health care fields with many latest trends and customs coming into practice.^[6]

In our study 40% of subjects belonged to age group of 21 years to 30 years which was not in accordance with the study conducted by Sukhlecha et al who found 60 % of subjects in the age group of 21 years

to 30 years. In a study conducted in Nigeria, 89 % of participants were in the age group of 21 years to 40 years.^[7] 72.2 % of participants in our study group belonged to age group of 21 years to 40 years. 87 % subjects in our study were aware of sterilization policy in this hospital which is not in accordance with the study conducted by Sukhlecha et al where only 29.13 % participants were aware of sterilization policy.

Hand washing is an important and very basic aspect of infection control because the hand is a principal vector for transfer of pathogens in the health care setting. Of all the health-care staff and interns, 84.34% participants washed their hands with antiseptics before and after handling the patients which was more than the result found in study conducted by Sukhlecha et al (77.6 %). In a study conducted in Pakistan, 41.2% washed their hands once only whereas 42.6% respondents washed their hands twice, 14.8% washed their hand more than four times, and 1.4% did not feel the need of washing their hands.^[8] In another study in Italy, 86.5% maintained hand hygiene with antiseptic before invasive procedures such as urinary catheter or peripheral venous line insertion.^[9] In our study, 34.84% participants have seen the sterilization process and even participated in it whereas in study conducted by Sukhlecha et al, 44.2% received training for sterilization. Majority of the participants have heard about sterilization process but few have seen it happening and even participated in it. Emphasis should be given to good-quality training of health-care personnel working in the hospitals at regular time interval. Mean knowledge score of all participants was 4.34 ± 1.287 . Mean attitude score of all subjects was 3.80 ± 1.22 . Mean practice score of all 198 subjects was 5.36 ± 0.823 . Knowledge score of interns was more than nurses and lab technicians. Practice score of the nurses was slightly more than interns and lab technicians. Attitude score of all categories in our study was comparatively low. To improve overall knowledge, attitude and practice related to sterilization and its handling following steps should be taken: strict implementation of sterilization policy; it should be made compulsory for health-care facilities to get their health-care personnel trained from accredited training centers; these training centers should not become merely a one-time activity but should be a continuous process

depending on the patient input in different health-care facilities; training of sanitary staff should be specially emphasized; it should be ensured that the injuries happening to the health-care personnel are reported to the person in charge of Infection Control Committee of the hospital, and they report it in the prescribed format to the authorities.

CONCLUSION

This study was conducted to assess the knowledge, attitude and practice of health care professionals toward sterilization. The result showed that continuous in-service training is needed to improve, supplement, and update knowledge about different methods and techniques of sterilization. Sterilization is most important step in prevention of cross infection. There is a need to sensitize and motivate health-care staff through lectures and hands-on training can be imparted in workshops. In addition, orientation programs for health-care staff should also be aimed at creating awareness and providing information on guidelines and policies related to their duties.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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