AWARENESS AND KNOWLEDGE ON BLOOD/BODY FLUID SPILL MANAGEMENT AMONG MEDICAL STUDENTS - A SURVEY

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ABSTRACT

Introduction: The powerful control of body fluid spills is essential to prevent the transmission of infection through. Health services should have management systems in place for dealing with blood and body substance spills.

Aim: The aim of the study is to assess the knowledge and create awareness on body fluid spill management among medical students.

Materials and methods: A survey based questionnaire was done to create knowledge about body fluid spill management. A total questionnaire of 11 questions were collected by google forms and the data was analysed by SPSS software.

Result: In this study, most of the respondents used to wear gloves and masks while treating a patient, almost 78.6% was aware of general information on standard precautions and 72.3% knew to clean the spill before area cleaning. The chi square analysis showed that female participants are more aware than the male participants on the spill management.

Conclusion: Hence this study concludes that awareness on body fluid spill management is quite good among medical students.

Keywords: Precautions; management; analysis; general information; cleaning

I. INTRODUCTION

Management of blood and frame fluid spillages is one of the nine factors of standard infection management precautions. Occupational publicity to blood, other frame fluids, secretions and excretions via spillages poses a
potential hazard of infection, in particular to the ones being uncovered whilst supplying fitness and social care. The secure and powerful control of body fluid spillages is, therefore, essential in order to prevent transmission of infection through this route (Fuller, 1993). Health services should have management systems in place for dealing with blood and body substance spills. Protocols should be included in procedural manuals and emphasised in ongoing educational or training programs. The basic principles of blood and body fluid/ substance spills management are:- Standard precautions apply, including use of personal protective equipment (PPE) as applicable, spills should be cleared up before the area is cleaned, Generation of aerosols from spilled material should be avoided . Clean up procedures are followed for large or small spill with splash potential and Dried body fluids or small spill with low splash potential. (Fejes, Lindgren and Arbjörk, 2005)

Large or small spill with splash potential: First use absorbent material to soak up and contain spill with absorbent powder/ paper towels. Pour disinfectant directly onto material to disinfectant (Chitnis et al., 2004). A broad spectrum disinfectant such as 10% bleach solution powder on and left on the material 10-30 minutes before clean up is sufficient in most instances to disinfect (Deepika, Preejitha and Brundha, 2020). Other disinfectants may be used as long as the label lists that it kills a broad spectrum of human infectious agents. After the body fluid material is collected and placed into a trash bag, pour disinfectant on the area of spill to complete disinfection and wipe up with paper towels.

Dried body fluids or small spill with low splash potential: Use absorbent material to soak up and contain spill with absorbent powder/ paper towel if necessary. Pour a broad spectrum disinfectant such as 10% bleach solution onto the body and leave on for 10-30 minutes before clean up. After the body fluid material is collected and placed in a trash bag, pour disinfectant on the area of spill to complete disinfection and wipe up with proper towels. (Martin et al., 2004)

Basic hygiene and accidental exposures include; employees should wash their hands with soap and warm water immediately after removing gloves and other protective equipment, disinfect all reusable equipment, upon accidental skin contaminations, wash the area with copious amounts of soap and water, if eyes or mucous membranes are accidentally contaminated flush with copious amounts of water, report all accidental exposures to your supervisor.

Basic measures to deal with body fluid spillage includes:- Clear away using paper towels and place into a waste bag and wash the area with detergent and warm water. Try and ventilate the area by opening windows and doors. If a spillage is on soft furnishings, chlorine releasing agents must not be used. Wearing your PPE wash the area with a disposable towel using detergent. (Agrò and Vennari, 2013) Previously our team has a rich experience in working on various research projects across multiple disciplines (Neelakantan et al., 2015; Ramamoorthi, Niveditha and Divyandan, 2015; Abdul Wahab et al., 2017; Eapen, Baig and Avinash, 2017; Manivannan et al., 2017; Patil et al., 2017; Ezhilarasan, Sokal and Najimi, 2018; Jeevanandan and Govindaraju, 2018; Ravindiran and Praveenkumar, 2018; Wahab et al., 2018; Malli Sureshbabu et al., 2019; Mehta et al., 2019; Rajeshkumar et al., 2019; Samuel, Acharya and Rao, 2020; Sathish and Karthick, 2020).

The aim of the present survey is to assess and create awareness on the body fluid spill management among medical students.

II. MATERIALS AND METHODS

The present study was carried out among a group of medical college students. A questionnaire based observational cross sectional type of study comprising 140 people. A self administrative questionnaire was circulated through an online survey link using google forms. The data collected were analysed using SPSS software. The Chi square test was also performed to

III. RESULTS AND DISCUSSIONS

This is an external descriptive on the knowledge and awareness of body fluid spill management among medical students. 59.3% of the respondents were females (figure 1). In the present study, the majority of the respondents are aware of body fluid spill management (74.6%) (figure 2). The chi square analysis showed that the majority of the females were aware of body fluid spill management (figure 3). The study done by Chitnis V, also got similar kinds of results (Chitnis et al., 2004). In this study majority of the students are aware of general information on the standard precautions (78.4%) (figure 4 and figure 5). A previous study by N. A Bronzel, also showed similar
results (Brunzel, 2013). In this survey, respondents were asked if they wash their skin and hands regularly, in which 77.1% of the respondents responded positively (figure 6 and figure 7). In this survey, 74.5% of the respondents were aware of wearing PPE kit as part of standard precautions (figure 8 and figure 9). Respondents were asked if the spill should be cleared before cleaning the area, in which the majority responded positively, which is consistent with previous study done by Saadatpou (Saadatpour and Afshar, 2013)(figure 10). In the present study, respondents were asked if they think urine is a natural spill, 77% respondents knew that urine is a kind of natural spill (figure 11). In a similar kind of study by Kim JA in 2017, the results obtained were against the present study. It may be because students were not aware of spills and its management at that time (Kim et al., 2017). In this study, respondents were asked if they think generation of aerosols from spilled material should be avoided, almost 81.3% responded positively (figure 12). In a study by Leggat P, the same kind of results were observed, where about 76% respondents responded positively (Leggat and Kedjarune, 2001; Jarrell, 2003). When the students were asked if they are aware of blood borne pathogens, the majority of the respondents were aware (81.4%) (figure 13 and figure 14), which is similar to a previous study (Jarrell, 2003). Our institution is passionate about high quality evidence based research and has excelled in various fields (Pc, Marimuthu and Devadoss, 2018; Ramesh et al., 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai et al., 2019; Sridharan et al., 2019; Vijayashree Priyadharsini, 2019; Mathew et al., 2020). The limitations of the present study include the small sample size and inclusion of only a single type of population. The number of people included in the study and limited geographical area. More number of people should be included in the survey and can expand the survey among different types of population in the healthcare field to create more awareness among the population. Lunding more participants and comparing with the present study can help in giving precise results in the coming future.

![Figure 1: This bar graph represents the percentage distribution of gender of respondents. X axis represents gender and Y axis represents the percentage of participants. 60.14% were females and 39.86% were males](image)
Figure 2: This bar graph represents the percentage distribution of respondents who are aware of body fluid spill management. X-axis represents response and Y-axis represents percentage of respondents. 74.45% of the respondents were aware and 25.55% were not aware.

Figure 3: Bar graph showing the comparison of responses based on gender to the awareness on body fluid spill management. X-axis represents the gender and Y-axis represents the number of participants of which blue colour indicates yes and red colour indicates no. Majority of the females (63) were more aware of body fluid spill management. However, the difference in awareness among males and females is not statistically significant (chi square value 1.073; p-value 0.300 (>0.05) hence not significant).
This bar graph represents the percentage distribution of respondents who are aware of general information on standard precautions to be followed during spill management. X axis represents response and Y axis represents percentage of respondents. 78.6% of respondents were aware and 21.4% of respondents were not aware.

FIGURE 5: Bar graph showing the comparison of responses based on gender to general information on standard precautions to be followed during spill management. X-axis represents the gender and Y-axis represents the number of participants of which blue colour indicates yes and red colour indicates no. Majority of the females (68) were more aware of general information on standard precautions. However the difference in awareness among males and females is not statistically significant (Chi square value=1.297  p-value-0.35(>0.05) hence not significant.
Figure 6: This bar graph represents the percentage distribution of respondents who are aware of washing their hands and skin at regular intervals. X axis represents response and Y axis represents percentage of respondents. 77.1% of respondents were aware and 22.9% were not aware.

Figure 7: Bar graph showing the comparison of responses based on gender to the awareness of wearing a mask and gloves. X-axis represents the gender and Y-axis represents the number of participants of which blue colour indicates yes and red colour indicates no. Majority of the females (61) wear masks and gloves while treating the patients. However the difference in responses among males and females is not statistically significant (chi square value= 1.193 p-value-0.137 (>0.05) hence not significant.
This bar graph represents the percentage distribution of respondents who are aware of wearing PPE. X axis represents response and Y axis represents percentage of respondents. 74.5% of respondents are aware of wearing and 25.5% of respondents are not aware.

Figure 9: Bar graph showing the comparison of responses based on gender to the awareness on using PPE. X-axis represents the gender and Y-axis represents the number of participants of which blue colour indicates yes and red colour indicates no. Majority of the females (63) were aware of wearing PPE as part of standard precautions. However the difference in awareness between males and females is not statistically significant (chi square value=1.297  p-value-0.37 (>0.05) hence not significant).
Figure 10: This bar graph represents the percentage distribution of respondents who are aware of spill clearance before area cleaning. X axis represents response and Y axis represents percentage of respondents. 72.3% of the respondents were aware and 27.7% were not aware.

Figure 11: This bar graph represents the percentage distribution of respondents who are aware that urine is a natural spill. X axis represents response and Y axis represents percentage of respondents. 77.1% of the respondents believed that urine is a natural spill, 22.9% didn’t support it.
Figure 12: This bar graph represents the percentage distribution of respondents who are aware of generation of aerosols from spilled material. X axis represents response and Y axis represents percentage of respondents. 81.4% of respondents were aware of generation of aerosols from spilled material, while 18.6% were not aware.

Figure 13: This bar graph represents the percentage distribution of respondents who are aware of blood borne pathogens. X axis represents response and Y axis represents percentage of respondents. 81.6% of the respondents were aware and 18.4% were not aware.
Figure 14: Bar graph showing the comparison of responses based on gender to the awareness of blood borne and other pathogens. X-axis represents the gender and Y-axis represents the number of participants of which blue colour indicates yes and red colour indicates no. Majority of the females (72) were aware of the blood borne pathogens. However the difference is not statistically significant (chi square value= 1.073 p-value=0.137 (>0.05) hence not significant.

IV. CONCLUSION

In the present study, most of the respondents are aware about body fluid spill management. The chi square analysis showed that female participants are more aware than the male participants on the spill management. More awareness has to be created to make everyone among the medical students on blood/body fluid spill management. Not only awareness practice on spill management is also essential.

REFERENCES


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