

Surgeon Behavior and Knowledge on Hand Scrub and Skin Antisepsis in the Operating Room

Ugurlu M. Umit, MD,* Mokhtare Sina, MD,* Yildiz Ferhat, MD,* Pekru Yasemin,[†] Kuzucanli Meltem,* and Aktan A. Ozdemir, MD*

*Marmara University School of Medicine, Department of General Surgery, Istanbul, Turkey; and [†]Marmara University School of Medicine, Department of Infectious Diseases and Clinical Microbiology, Istanbul, Turkey

BACKGROUND: Surgical site infections adversely affect patients' well-being. In this study, hand-washing details and adherence to surgical site antisepsis applications among surgical staff were observed and recorded. Then, a questionnaire was given to test surgeons' theoretical knowledge on operating room principles.

METHODS: Staffs from 5 surgical units were selected (surgeons and nurses from general surgery, urology, plastic surgery, thoracic surgery, and gynecology and obstetrics) and observed. They were questioned on the choice and properties of antiseptics, proper duration of hand washing and use of brushes, and essentials of patient skin antisepsis.

RESULTS: A total of 107 observations (53 residents, 27 nurses, 6 attending staff, and 21 academic staff) were done. Overall mean (\pm standard deviation) hand-washing time was 69.1 (49.8) seconds (range: 43.8-98; p : 0.001). Overall, 79 (73.8%) never used a brush, 18 (16.8%) used the brush for the nails only, and 10 (9.4) used the brush for hands and arms as well as the nails. Mean (\pm standard deviation) time from the application of skin antiseptic to surgical incision time was 6.7 (3.5) minutes (p : 0.088). According to the questionnaire, surgeons believed that proper hand-washing time should be 4.2 ± 2.8 minutes (p = 0.13). Brush usage was questioned and 50 (70.4%) favored brush usage whereas 21 (29.6%) were against it. The question for mechanism of action of povidone iodine is answered as 'bactericidal' by only 69%.

CONCLUSION: The study shows that both adherence to local hand-hygiene protocols and surgical staffs' basic

knowledge about surgical antisepsis are low. (J Surg 71:241-245. © 2014 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: surgical site infections, hand scrub, skin antisepsis, surgeon behavior

COMPETENCIES: Patient Care, Medical Knowledge, Professionalism

INTRODUCTION

There are many rules that surgeons should know and adhere to prevent surgical site infections (SSI). Rational use of prophylactic antibiotics, appropriate hair removal, keeping body temperature, glycemic control, and good oxygenation has all been shown to reduce the incidence of SSI.¹⁻⁵ Since the early periods of surgery, hand washing and surgical site antisepsis have been major factors in the fight against SSI. Although the cause of SSI is multifactorial, preoperative antisepsis has a definite role.⁶ However, the best antiseptic and the proper way of hand washing are not clear.^{7,8}

Surgeons' behavior in the operating room does not always correlate with their scientific knowledge. In practice, in addition to deficiency in basic knowledge, disbelief or suspicion in established surgical facts may affect surgeons' daily activities. Workload may also affect surgeon behavior as surgeons hurry to carry out their duties.

In this study, in a university hospital, hand scrub details, adherence to operating room principles, and surgical site antisepsis applications were observed and recorded in selected 5 surgical disciplines, and at the end of the study, a questionnaire was given to test surgeons' theoretical knowledge on operating room principles to prevent SSI. The principal aim of the study was to analyze the correlation between surgeons' applications and their theoretical knowledge. It was hypothesized that surgeons' basic knowledge does not correlate with their daily surgical practice.

Correspondence: Inquiries to Ugurlu M. Umit, Mimar Sinan C. Marmara University Pendik Teaching and Research Hospital, Department of General Surgery, Ust Kaynarca, Pendik, Istanbul, Turkey; e-mail: umitugurlu@gmail.com

MATERIAL AND METHODS

Five surgical units were selected for the study. Surgeons and scrub nurses from general surgery, urology, plastic surgery, thoracic surgery, and gynecology and obstetrics were observed for their behavior in the operating theater. The observed staff was given no prior notice. A senior medical student did the observation by paper recording. Residents, attending surgeons, scrub nurses, and academic surgeons were observed on their choice of the antiseptic used for hand scrub, duration of hand wash, and use of brushes. The use of brushes was detailed when it was used for nails only or when hands and arms were also brushed. The use of brushes was also observed to record whether it was used for every surgical procedure or just for the first surgery of the day.

For observation, laparotomies for general surgery, thoracotomies for thoracic surgery, laparotomies for gynecology, and renal surgery for urology were chosen. Both open and laparoscopic procedures were included in the study. Operations expected to last more than 1 hour were chosen for plastic surgery.

The choice of antiseptic for patient skin cleansing and the time from application to surgical incision were also recorded.

After the observation part of the study was completed, a questionnaire was given to the observed group (residents, attending surgeons, and academic surgeons) to briefly check their basic knowledge regarding hand scrub and skin antisepsis. They were questioned on the choice and properties of antiseptics, proper duration of hand scrub and use of brushes, and essentials of patient skin antisepsis.

Marmara University School of Medicine Institutional Ethics Committee approved the study.

Statistical Analysis: All statistical analysis was conducted using IBM SPSS 20 (IBM corp., USA). The ANOVA test was used for comparison of significance among the groups, and statistical significance was assumed as $p < 0.05$.

RESULTS

A total of 107 observations (53 surgical residents, 27 scrub nurses, 6 attending surgeons, and 21 academic surgeons) were done. Surgical staffs (residents, scrub nurses, attending surgeons, and academic surgeons) from general surgery (n: 23), urology (n: 24), plastic surgery (n: 20), thoracic surgery (n: 23), and gynecology (n: 17) were observed. Hand antisepsis was done with povidone iodine (PVP-I) by 75 (70%) and chlorhexidine gluconate (CHG 2%) was used by 32 (30%).

ACTUAL SCRUB TIME

Overall mean (\pm standard deviation (SD)) hand-washing time was 69.1 (49.8) seconds. Mean (\pm SD) hand-washing time was 83.4 (55.0) seconds for general surgery, 60.4 (43.2)

seconds for gynecology, 54.3 (35.8) seconds for urology, 43.8 (29.4) seconds for plastic surgery, and 98.4 (49.8) seconds for thoracic surgery ($p = 0.001$). Details of hand washing for each surgical discipline are given in [Table 1](#).

ACTUAL SCRUB TIME ACCORDING TO THE STAFF TYPE

Mean (\pm SD) hand-washing time was 67.5 (55.5) seconds for academic staff, 59.3 (59.1) seconds for attending staff, 66.1 (41.7) seconds for residents, and 78.2 (58.8) seconds for nurses ($p = 0.724$). Details of hand washing for each staff are given in [Table 2](#).

ATTITUDE AND ACTUAL TIMING OF BRUSH USAGE

It was found that 79 (73.8%) of the hand-brushing observations were done for the first surgery of the day whereas the remaining 28 (26.2%) were following surgical procedures. Overall, 79 (73.8%) never used a brush, 18 (16.8%) used the brush for the nails only, and 10 (9.4%) used the brush for hand and arms as well as the nails.

ACTUAL TIME BETWEEN SKIN PREPARATION AND INCISION

Mean (\pm SD) time observed from the application of skin antiseptic to surgical incision time was 6.7 (3.5) minutes. This time was longest for urologists 7.7 (4.2) minutes and lowest for gynecologists 5.1 (1.4) minutes. There was no statistical significance among observed surgical disciplines ($p = 0.088$).

QUESTIONNAIRE-BASED SURGEONS' KNOWLEDGE ON SCRUBBING AND SKIN PREPARATION

Questionnaires were answered by 71 staff (surgical residents, attending surgeons, and academic surgeons) from different surgical units such as general surgery (n: 13), obstetrics (n: 23), plastic surgery (n: 11), urology (n: 13), and thoracic surgery (n: 11). Surgical staff mostly preferred PVP-I (n: 63, 88.7%) for hand antisepsis; there was no statistical difference observed among the disciplines for antiseptic choice ($p: 0.18$).

According to the questionnaire, surgeons believed that proper hand-washing time should be 4.2 ± 2.8 minutes and no statistical difference was found among the answers of staffs from the surgical disciplines ($p = 0.13$). The required proper time for hand washing was lowest for plastic surgeons (2.5 ± 1.0 minutes) and highest for general surgeons (4.4 ± 3.3 minutes).

Download English Version:

<https://daneshyari.com/en/article/4297609>

Download Persian Version:

<https://daneshyari.com/article/4297609>

[Daneshyari.com](https://daneshyari.com)