



ANALYSIS OF HANDS ASEPSIS AND ANTISEPSIS BY ANESTHESIOLOGISTS

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ABSTRACT

Background and Objectives: Anesthesiologists perform invasive procedures, which require adequate hand hygiene. This research aims to analyze hands asepsis and antiseptic by anesthesiologists, type of technique most used, correlate hygiene habit and moments in which it is performed, evaluate the use of sterile / procedure gloves at each moment. **Method:** A cross-sectional study was carried out by a questionnaire formulated for this research, electronically sent by SBA to 11,741 members, after approval by the ethics committee. The data were analyzed by SPSS 20.0, the numerical variables by t student test and the categorical variables by the chi-square test. **Results:** 471 anesthesiologists answered, accounting for 4.01%. Water and soap was

the technique used by 36.31% of the interviewees. Among the moments: 66.66% performed hand hygiene upon reaching work, 38% before touching the patient and 45.43% after coughing / sneezing. In the exposure to body fluids, 97.23% proceed with hygiene. 89.8% of the interviewees proceeded to hygiene before neuraxial blockade. In intubation, 68.15% of the interviewees always use procedure gloves and 78.34% always use in extubation. Sterile gloves are always used by 98.51% of professionals in neuraxial blockades; by 98.09% in central venous access puncture and by 57.32% for invasive blood pressure puncture. In peripheral blocks, 57.33% of anesthesiologists always use sterile gloves. **Conclusions:** Anesthesiologists have good adherence to hand hygiene, but still aiming for self-protection rather than reducing hospital infection levels. There is preference for water and soap in hygiene and some do not use suitable gloves for each procedure.

KEYWORDS: hand hygiene; anesthesiologists; asepsis and antisepsis; infection.

INTRODUCTION

Health care-associated infections affect hundreds of millions of patients worldwide each year and are a threat to patient safety.^[1] They affect approximately 5% to 10% of hospitalized patients and the primary means of transmission is through the contaminated hands of healthcare professionals.^[1] Hand hygiene is the most important method of prevention of hospital-associated infections in health care, and also works to protect health professionals and prevent contamination of the hospital environment.^[1]

Anesthesiologists should ensure that good hand hygiene becomes an indispensable part of their clinical culture.^[1] In anesthesia practice, invasive procedures are routinely performed that go beyond physiological barriers, such as tracheal intubation, venous access or neuraxial blockades, which allows the contamination of the patient by microorganisms and the development of infection. Failure to adhere to recommended practices of asepsis and antisepsis may facilitate the transmission of microorganisms from the anesthesiologist to the patient, from the patient to the anesthesiologist and between patients.^[3]

In developing countries, the incidence of hospital-associated infections in health care is even bigger and the commitment to prevention of these infections through hand hygiene is less than 40% among health professionals.^[1] Their failure contributes to the spread of multi-resistant organisms, and is recognized as a significant contributor to infection outbreaks in hospitals and health centers.^[4]

Hospital infections are associated with increased antimicrobial resistance, prolonged hospital stays, long-term patient deficits, high costs for patients and their families, a huge additional financial burden on the health system, and increased morbidity and mortality in the environment hospital.^[4]

Most infections are preventable and hands asepsis and antisepsis is the primary measure to reduce infections. A simple action, perhaps, but the lack of commitment among health care providers is problematic globally, contributing to multiresistant organisms spread.^[5] In addition, it is necessary to emphasize the importance of safe use of gloves. Although they may offer some protection against inoculation with bloodborne viruses, misuse of gloves can actually spread infection among patients.^[2]

Thus, it is important to analyze hands asepsis and antiseptics performed by anesthesiologists, to evaluate the most used type of technique, to correlate the habit of hand hygiene and the moments in which it is performed, to evaluate the use of sterile/procedure gloves in interventions performed by anesthesiologists.

METHOD

A cross-sectional study was performed using a questionnaire (Appendix A), formulated for this research and sent electronically to Brazilian anesthesiologists, in a total of 11,741, associated with the Brazilian Society of Anesthesiology (SBA), after approval by the Ethics Committee (CAAE:67494317.3.0000.5186), questioning hand wash and gloves use at work. This online questionnaire was available for 20 days.

Research population was obtained by spontaneous decision of the professional to answer the questionnaire through the internet, which was divided into 1) Time of activity as anesthesiologist; 2) Material used routinely for hand hygiene; 3) Moments when performing hands asepsis and antiseptics and 4) Use of sterile or procedure gloves at certain times.

Numerical variables were evaluated through t-student test and categorical variables were analyzed using the chi-square test. All calculations were performed using SPSS (Statistical Package for Social Sciences) software, version 20.0, with bicaudal values of p equal to or lower than 5% ($p \leq 0.05$) being considered statistically significant. 95% CI (confidence interval) Patient confidentiality will be maintained through the confidentiality of the information, with a file accessible only to researchers.

RESULTS

The questionnaire was answered by 471 anesthesiologists, corresponding to 4.01% of the total. The highest index of research responses occurred among anesthesiologists with training time up to 5 years (Table I). Hand hygiene with soap and water is the preferred technique and is used by 36.31% of the interviewees (Table II).

On reaching the workplace, 66.66% of the interviewees hand hygiene and 33.34% do not. Only 38% clean their hands before touching the patient and 45.43% after coughing/sneezing. When there is exposure to body fluids, 97.23% of the interviewees clean their hands Most anesthesiologists, 89.8%, performed hand hygiene before neuroaxis blockade; 70.9% before peripheral blockades; 93.41% before central venous access puncture and 79.19% after gloves

use. In general anesthesia and peripheral venous access puncture, 76% and 71.18% of the interviewees, respectively, did not proceed hand hygiene.

Regarding the frequency of procedure gloves use in interventions, anesthesiologists always use them in 68.15% of intubations; in 78.34% of extubations; in 43.31% of peripheral blockades; in 35.03% of the peripheral veins puncture and in 44.8% of invasive blood pressure punctures. In neuraxial blockade, 69.42% never used; 0.21% rarely use and 0.42% frequently use procedure gloves. In central venous access puncture, 67.3% of anesthesiologists never use such gloves.

The use of sterile gloves by anesthesiologists in procedures is reported in Table III.

APPENDIX: Questionnaire

1. How long have you been an anesthesiologist?

0 to 5 years
5 to 10 years
10 to 15 years
15 to 20 years
> 20 years

2. Wich technique do you use the most for hand hygiene?

- Water and soap
- Alcohol
- Water and brushing with polvidine
- Water and brushing with clorexidine

3. Do you proceed hand hygiene.

	YES	NO
Upon arrival at workplace		
At the exact moment before touching the patient		
After exposure to body fluids		
After coughing or sneezing		
Before induction of general anesthesia		
Before neuraxial blockades		
Before peripheral blocks		
Peripheral venous access puncture		
Central venous access puncture		
After gloves use		

4. Do you wear procedure gloves.

	Always	Frequent	Rare	Never
Intubation				
Extubation				
Neuraxial block				
Peripheral block				
Peripheral venous access puncture				
Central venous access puncture				
Invasive blood pressure				

5. Do you wear sterile gloves.

	Always	Frequent	Rare	Never
Intubation				
Extubation				
Neuraxial block				
Peripheral block				
Peripheral venous access puncture				
Central venous access puncture				
Invasive blood pressure				

Table I: Time as anesthesiologist

Time as anesthesiologist	% of interviewees
Up to 5 years	35,46
Between 5-10 years	13,8
Between 10-15 years	10,4
Between 15-20 years	8,7
More than 20 years	31,64

Table II: Most used technique by anesthesiologists

Most used technique	% of interviewees
Water and soap	36,31
Alcohol 70%	26,11
Water and chlorhexidine	33,12
Water and polvidine	4,46

Table III: Use of sterile gloves by anesthesiologists

Interviewees number				
Do you use sterile gloves in	Always	Frequent	Rare	Never
Intubation	9	15	68	379
Extubation	9	4	59	399
Neuraxial block	464	3	1	3
Peripheral block	270	62	76	63
Peripheral venous access puncture	6	7	69	389
Central venous access puncture	462	2	2	5
Invasive blood pressure	270	43	67	91

DISCUSSION

In relation to the most adequate technique for hand hygiene, alcohol is considered the best in almost all situations,^[4] with the N-propanol composition being the most active and with Ethanol the least active.^[6] Compared with soap and water, alcohol has greater availability, a higher level of antimicrobial efficacy, faster use and better skin tolerability.^[4] Alcohol concentration is also an important factor in the skin disinfection degree, with the most effective concentrations being between 60% and 80% (volume percentage)^[6] Among the interviewees, most use water and soap or water and chlorhexidine, which demonstrates anesthesiologists' lack of knowledge regarding the most effective technique for hand washing. These are best indicated only when there is visible hands contamination with blood, body fluids or proteinaceous materials and hands exposure to spore forming organisms.^[4]

Despite the fact that exposure to blood and body fluids is common among anesthesiologists as well as care in operating rooms, hand hygiene in this group is especially low.^[7] We can verify this fact when we analyze hand hygiene in several activities among the interviewees. Among the "Five Moments for Hand Hygiene" defined by WHO, four were included in this study: At the exact moment before touching the patient, after coughing/sneezing, before performing aseptic procedures and after risk of exposure to blood/body fluids. These moments were developed in order to prevent exogenous pathogens from being carried into the hospital environment, avoiding inter-patient contamination, as well as the health professional's own safety.

At the moment before performing aseptic procedures, there was good hygiene adhesion by anesthesiologists, except in peripheral venous puncture and general anesthesia induction, and after own contamination, which corroborates with the literature. It was studied that at times when there is a greater risk of contamination of the professional to the detriment to the patient contamination, a higher rate of hygiene occurs, indicating a greater concern with your own safety.^[8]

The lower frequency of hand hygiene by anesthesiologists was observed at the time before touching the patient, which is in disagreement with WHO, which cites hygiene at this time as essential to prevent transmission between patients and the contamination of these by exogenous germs present in health professionals hands, being the moment before touching the patient critical. Hand hygiene should occur between the last hand-surface contact with an

object located outside the patient's area and the first located within immediately before touching the patient.^[1]

When hand hygiene was questioned on arrival at the workplace, one of WHO's moments, it was evidenced that the majority of the interviewees did it, being a benefit for the improvement in the prevention of nosocomial infections related to health care. It is important to emphasize that objects contamination of the hospital environment may also occur when hygiene is not present at the moment, due to the transport of microorganisms on the way to the work environment.

Regarding the moment after coughing / sneezing, the research evidenced that the majority does not perform hand hygiene, not following the literature recommendations. Hand hygiene is a precautionary measure in health care when there are risks of transmitting diseases through respiratory droplets. Thus, this is an infection control measure that should be encouraged in health services to avoid or minimize the transmission of respiratory droplets through cough and sneeze.^[9]

Most of the interviewees stated that they performed hygiene after wearing gloves, showing agreement with the literature proposals.^[4] The use of gloves does not replace the need for hand hygiene.^[4] And these should be removed after contact with the patient and cannot be reused¹. In this way, the hands should be cleaned both before and after gloves use, as well as when it is necessary to change them to manipulate different sites in the same patient. The absence of these practices, confirmed by the existence of respondents who said they did not perform hand hygiene at this moment, shows that there are still failures and that this can cause infections among patients in the hospital environment.

Regarding gloves use, sterile gloves are recommended in neuroaxial blocks, central venous punctures, peripheral blocks and arterial punctures. Peripheral venous punctures or intramuscular injections may be performed with single-use non-sterile gloves, as well as orotracheal intubations.^[10] Most of interviewees use procedure gloves in peripheral blocks and invasive arterial puncture, which is an aggravating factor in the spread of infections, since these should be performed aseptically. In addition, some interviewees reported using procedural gloves to perform neuraxial blockades, which is in disagreement with the literature.^[10] and may culminate in severe neurological infections.

After analyzing the results, it was observed that anesthesiologists have a good adherence to the practice of proper hand hygiene, but still aiming for their own protection in detriment of hospital infection levels decrease. There is also necessary to reinforce some points, such as the best technique for hand washing and the use of suitable gloves for each procedure.

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