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001420

Interpleural location of chest drain on ultrasound excludes pneumothorax and can be predicted from low degree of chest drain foreshortening taken from anteroposterior chest X-ray

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INTRODUCTION. Chest ultrasound (CUS) is mandatory to confirm a full lung expansion after pleural drainage for pneumothorax in the critically ill. With regards to high rate of chest drain (CD) malposition its subsequent controls by chest X-ray (CXR) during ICU radiology rounds are warranted. Even a small PNO is still important because it may easily enlarge due to positive inspiratory pressure (IPPV). Our pilot paper (1) utilizing CXR and chest CT showed that greater foreshortening of the CD and a steep angle of inclination of the CD above the horizontal at chest entry taken from CXR should raise suspicion of CD migration. They mandate further investigation by CUS to rule out residual pneumothorax occult on CXR. The role of CD location by CUS in the diagnosis of pneumothorax has not been explored yet.

OBJECTIVES. CD foreshortening taken from CXR may associate with an absence of CD detection between ventral pleural layers on CUS in a supine patient and presence of an occult pneumothorax confirmed on CUS.

METHODS. Patients were prospectively monitored with CUS and CXR after drainage for pneumothorax performed by intensivists using 16-20F CDs and blunt forceps technique in the safe triangle. All drains were connected to a closed suction system providing a pressure of -20 mbar. The foreshortening was estimated as a decrease of chest drain index (CDI=length of CD in chest taken from CXR/depth of insertion on CD scale+5 cm). The angle of inclination of the CD was measured as the angle between the horizontal line and CD at the pleural space entry on CXR. Pneumothorax was diagnosed on CUS according to current standards (2).

RESULTS. 85 pneumothoraces were prospectively monitored in 61 patients on IPPV, age 56.2±19.8, APACHE II 22±4, SOFA 9±2.2. CDs were located on CUS in 55 patients, the full interpleural course of a CD until its tip was detected in 43 patients. There were 6 small occult pneumothoraces in this group (13.9%) particularly due to a steep angle of the CD >50°(n=4), the CDI was 0.96±0.13. In 30 patients the CDs could not be located by CUS, 6 of those were excluded for subcutaneous emphysema. There were 13 pneumothoraces in this group (54%), the CDI was 0.76±0.23 (p<0.001). The risk ratio for pneumothorax in a patient with low CDI on CXR and associating absence of the interpleural CD location on CUS is 3.88, CI 1.70-8.89, p=0.001, NNT 2.49.

CONCLUSION. A low CDI on CXR calls for a CUS verification of a CD position and exclusion of an occult pneumothorax not detected by the CXR.

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INF - Prevention of infection: Ways of improvement

000078

Knowledge and Perceptions of the Critical Care Workers about Hand Hygiene

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INTRODUCTION. There is a great concern to carry out surveillance, prevention and control programs of Healthcare-associated infections (HAIs), with emphasis on hand hygiene (HH). It is important to know the perceptions of the healthcare professionals to try to improve the adherence to these programs.

OBJECTIVES. To identify the perceptions and knowledge of the healthcare workers of an Adult Intensive Care Unit (AICU) and a Pediatric Intensive Care Unit (PICU) about HH and correlating them with the adherence of the compliance program to HH.

METHODS. Cross-sectional, prospective, descriptive and comparative study, about the knowledge and perceptions of the health professionals with respect to HH, through the realization of a survey published and validated by the World Health Organization. In addition, these perceptions are compared with the evaluation of the adherence to the HH that had been done prior to this study by direct observation of the workers during their daily work.

RESULTS. 187 surveys were obtained (142 from AICU and 43 from PICU); >80% of total the population. >90% had received formal training on HH in the last 3 years and regularly use of alcohol-based solution (ABS). Regarding knowledge, there are no significant differences between the units. 35% of the AICU professionals and almost 50% from the PICU consider that hand washing (HW) is more effective than hand friction (HF) with alcohol-based solutions (ABS) for the elimination of microorganisms. >30% believe that it is advisable to perform the HW and HF sequentially. Only 55.8% know the minimum adequate time to eliminate microorganisms by HF. They overestimate the percentage of occasions in which they perform HH correctly with respect to adherence rates to HH, through direct observation, (PICU 89.32% vs 73.8% and AICU 82.93% vs 51.4%)(p = 0.0001).

CONCLUSION. Despite being a sample of professionals with formal training on HH, the results indicate that they have incomplete knowledge and overvalue their perception compared with the adherence rates obtained through observational studies.

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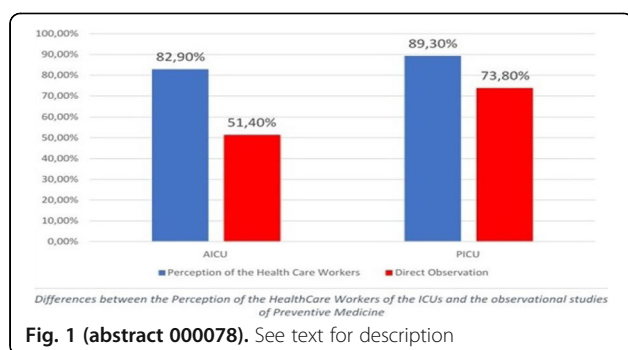


Fig. 1 (abstract 000078). See text for description

000080

Adherence to Hand Hygiene in an Adult and other Pediatric ICU

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INTRODUCTION. The World Health Organization (WHO) promotes that proper hand hygiene (HH) is the main practice, with the lowest economic cost and the easiest to perform to reduce the incidence and spread of antimicrobial resistant microorganisms, which improves patient safety in all health areas. However, WHO rates the HH compliance index by health professionals is insufficient (less than <40%).

OBJECTIVES. To know the adherence rates to the HH, between the Health-care workers (HCWs) in an adults ICU (AICU) and other pediatric (PICU).

METHODS. An observational study was conducted on the compliance of HH for the five WHO moments. HCWs were observed during their work shift. The observers also measured the technique of HH through hand washing or HH with alcohol-based disinfectant. HH opportunities and attempts were designated as appropriate or inappropriate per WHO criteria.

The percentage of adherence was calculated as the number of opportunities of HH (with soap and water or alcohol-based solutions (ABS)) multiplied by 100 and dividing by the total of identified opportunities.

RESULTS. 391 opportunities were identified in the AICU and 320 in the PICU, a HH adherence rate in the AICU of 51.40% and 73.80% in the PICU was determined. By professional profile it was observed that the nursing staff is significantly the most adherent (64% in the AICU and 82% in the PICU). It was found that in the AICU the adherence is greater after being in contact with the patient), unlike the PICU where they perform it predominantly before in all professional profiles.

CONCLUSION. The adherence to hand hygiene in the AICU is low. The adherence to HH is greater before contacting the patient in the PICU, unlike the AICU where it is predominantly carried out afterwards. So it is necessary to implement effective education programs that improve adherence to hand hygiene compliance.

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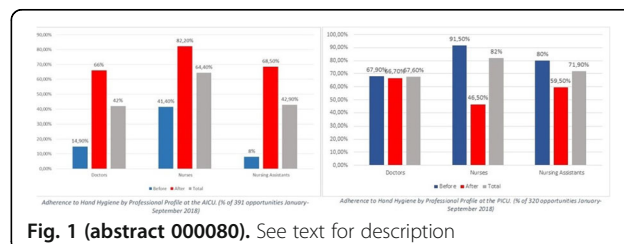


Fig. 1 (abstract 000080). See text for description

000124

Stethoscopes- potential sources of cross infections in ICU

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INTRODUCTION. -Emergence of antimicrobial resistance and MDROs has resulted in a global health burden, increasing cost of health care, length of hospital/ ICU stay and mortality. Risk of bacterial transmission through equipment transfer is not given as much importance as hand hygiene.

-Studies have proven contamination of stethoscopes with both non-pathogenic and pathogenic (including MDR) organisms. Jones et al showed that out of 150 stethoscopes used by emergency medical staff, 89% grew staphylococci and 19% S aureus[1]. Marinella et al showed that coagulase-negative staphylococcus was present on 100% of stethoscopes and Staphylococcus aureus on 38% of 40 random stethoscopes examined [2].

-CDC guidelines suggest performing low level disinfection for non-critical patient care surfaces and equipment that touch intact skin e.g. bed rails, blood pressure cuffs and stethoscopes

OBJECTIVES. - To determine whether stethoscopes can be potential sources of cross-infection/cross contamination in our ICU

METHODS. -All 4 adult ICUs (total 73 beds) were surveyed between Nov-Dec 2018 for the number of bedside stethoscopes at random times for a total of 2 weeks. Each bedside stethoscope was also labelled with unique identifier codes, and movement of stethoscopes between bed spaces and patients was tracked on a daily basis.

-A survey questionnaire was also sent to all the ICU medical staff regarding infection control practices with respect to use of bedside stethoscopes in ICU.

RESULTS. -Average number of stethoscopes found in ICU's 1,2,3 & 4 were 71.4%, 66.6%, 77.7% and 110% respectively and number of times stethoscopes were found to be misplaced were 24.4%, 31.7%, 34.92% and 8% respectively

-Unit acquired infection rates from April 2018-March 2019 for ICUs 1,2, 3 & 4 were 17.1/1000, 33/1000, 20.3/1000 & 5.8/1000 respectively

-A total of 210 people responded to the survey questionnaire (23% doctors, 74% nurses). 69% said they share stethoscopes between bedspaces, because of non-availability of 1:1 dedicated bedside stethoscopes (5%), poor