

Using chg wipes
among icu patients to
reduce hospital-
acquired infection



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Abstract

Clinical Problem: Patients in Intensive Care Units (ICU) that acquire healthcare-associated infections (HAIs) are associated with increased length of stay in the hospital, rates of death, and increased costs (Noto et al., 2015).

Objective: The objective of this synthesis is to discuss if using chlorhexidine gluconate (CHG) or a non-antiseptic when bathing will reduce HAIs among adult ICU patients. PubMed and CINAHL were searched to find randomized control trials (RCT) regarding the use of CHG wipes (CHGW) to reduce HAIs. The key search terms were chlorhexidine gluconate, hospital-acquired infections, and intensive care units.

Results: In adult ICU patients who received a bath with CHGW, there is a statistically significant reduction in HAIs compared to those who were bathed with a non-antiseptic. Climo et al. (2013) demonstrated a decrease in HAIs among adult patients who received daily bathing with CHG washcloths ($p= 0.007$). Swan et al. (2016) showed a significant reduction of acquired infections in patients who received CHG bathing every other day ($p= .049$). Bleasdale et. al (2008) demonstrated a significant decrease in the likelihood to develop HAIs when using CHG impregnated cloths daily for bathing ($p= .01$). Noto et al. (2015) reported a non-significant decrease between bathing periods with CHG and bathing periods without CHG. The difference between the bathing periods and control periods were not drastically different ($p=.53$). CHG wipes are a non-invasive intervention that can be used in ICU patients to reduce the risk of HAIs.

Conclusion: Although CHG bathing has been shown to decrease the risk of acquiring infections among adult ICU patients, more research is necessary to decide which concentration of CHG is most beneficial and the frequency needed for it to be effective. Also, further research should be conducted to determine the most effective method of application.

Using CHG Wipes among ICU Patients to Reduce Hospital-Acquired Infection

Healthcare-associated infections (HAIs) are the most common cause of morbidity and mortality among hospitalized patients (citation). The Centers for Disease Control and Prevention (CDC) created several policies to constrain the spread of organisms among patients (Climo et al., 2013). These strategies include hand hygiene and isolation precautions. Although these were made to control the spread of organisms, these policies require constant adherence and can be difficult to maintain. CHG is a germ-killing agent that works against a variety of organisms that are resistant to other sterile agents. They also have extended antibacterial activity that may decrease the number of microorganisms on patients' skin and prevent secondary environmental contamination (Climo et al., 2013). Therefore, the use of CHGW for patient bathing may decrease HAIs, mortality rates, and the length of hospitalization. In adult ICU patients is bathing with CHG more effective when compared to bathing with a non-antiseptic in reducing the incidence of hospital-acquired infections?

Literature Search

PubMed and CINAHL were used to access randomized controlled trials (RCT)

pertaining to CHG bathing for reducing the risk for HAIs. Key search terms <https://assignbuster.com/using-chg-wipes-among-icu-patients-to-reduce-hospital-acquired-infection/>

included chlorhexidine gluconate, hospital-acquired infections, and intensive care units. The publication years searched were 2008 to 2018.

Literature Review

Four RCTs were used to assess the effectiveness of CHG baths in reducing HAIs among adult ICU patients. Climo et al. (2013) evaluated the effectiveness of daily bathing with CHGW compared to bathing with non-antimicrobial wipes to decrease the occurrence of hospital-acquired bloodstream infections (BSIs) in ICU patients. All units observed patients for MRSA and VRE. This was done by swabbing the nares and perirectal area from patients. These swabs were collected up to 48 hours after admission to the unit and on discharge from the unit. The sample size was 7277 patients from 9 intensive care units in 6 hospitals between August 2007 and February 2009. Patients were randomized into two groups, an intervention group (n= 3970) or a control group (n= 3757). The patients in each group rotated the order in which they were exposed to the intervention. Group 1 was bathed with 2% CHGW (intervention) during the first 6-month period, followed by daily bathing with non-antimicrobial washcloths (control) during the second 6-month period. Group 2 began the study as the control group during the first 6-month period and concluded the study as the intervention group during the second 6-month period. Before the study began nurse and staff were given instructions on the proper technique to bathe patients with both products. After samples were collected, the microbiology lab surveyed the samples and determined if MRSA or VRE were found. Data was collected over a year. There was an improvement in the risk for HAIs in patients who were bathed with CHGW ($p = .007$). There were multiple strengths to the <https://assignbuster.com/using-chg-wipes-among-icu-patients-to-reduce-hospital-acquired-infection/>

study. Patients were randomized into two groups and bathed with either CHGW or non-antimicrobial wipes and participants were blinded to which group they were put in. There were 8 patients noted who declined to participate in the study. The control group was appropriate and the patients had no notable baseline differences. Outcomes for the study were measured using valid and reliable tools. Weaknesses included that the investigators and clinical staff were not blinded to which group was the control and which group was the intervention, and random assignment wasn't concealed to individuals enrolling participants. Although the control group was appropriate, there was a slight difference in the ICU units used and there was nowhere in the study that listed demographics.

Swan et. al (2016) conducted a study that compared daily soap and water bathing with 2% CHG bathing among ICU patients. The sample size was 325 surgical patients that were admitted to the unit from July 2012 to May 2013. The subjects had a suspected ICU stay of 48 hours. The patients were randomized into a control group (n= 164) and an intervention group (n= 161). Patients in the intervention group were bathed with 2% CHG every other day alternating with soap and water every other day. The control group was bathed with soap and water daily. Of the patients that participated in the study, 24 were omitted due to previous enrollment in the hospital before this trial and only one patient didn't complete the study. Patient information was collected on a daily basis during the observation period and included 48 hours of follow-up. The authors reported that CHG bathing every other day reduced the risk of acquiring infections ($p= 0.049$) when compared to bathing with soap and water daily. The results suggest that CHG bathing

every other day may decrease the risk of HAIs in surgical ICU patients. Strengths of this study included random assignment to the control or intervention group, and the control group was appropriate. The only difference between the control groups was the intervention. Other strengths included reliable and valid instruments used to measure outcomes. To prevent errors in classification, two committee members independently reviewed every case using an identical flow sheet to detect HAIs. A few weaknesses existed in the study as well. Nurses completing the study were not completely blinded to the study groups and patients and clinicians were aware of treatment-group assignments.

Bleasdale et. al (2008) evaluated the effectiveness of CHGW compared to soap and water bathing in reducing the rate of HAIs in ICU patients. The sample size was 836 patients and the mean patient age was 52 years. The study was divided into two periods and two units were included. The first period was 28 weeks and the second period was 24 weeks. Units were randomly selected to serve as the intervention unit (Group 1) and the control unit (Group 2). Group 1 was bathed daily with 2% CHG impregnated washcloths (CHG arm). Group 2 was bathed daily with soap and water (soap and water arm). After the 28 weeks were over a 2-week “ wash out” period followed. During this period, patients were bathed with soap and water in both units before crossing over to the second period. Prior to the study periods, nurses were educated on the bathing procedures appropriate to their unit. Bathing technique was monitored. Outcomes were measured by using a daily electronic review of microbiological cultures. Whenever a patient had an infection directly related to the ICU stay, a medical record

review was performed. Clinical data was entered on a standardized form and reviewed by 3 investigators who were physicians. The authors reported that there was a decreased risk of HAIs in patients bathed with CHG compared to patients bathed with soap and water ($p = .01$). Many strengths existed in the study. They included use of an appropriate control group, large number of patient days, and instruments used were valid and reliable. The study also had a few limitations. The nursing staff could not be blinded to the intervention or control group. Only 1 of the 3 of the physicians who were categorizing HAIs were blinded to the study, which could have resulted in inaccurate results. The intervention group had fewer patients but equivalent patient days to the control group, which showed a slightly longer length of stay. Last, the study was conducted in a single center.

Noto et al. (2015) examined daily CHG bathing in critically ill patients to determine if it decreased the incidence of healthcare-associated infections. Patients from the sample population ($N = 9340$) were randomly assigned to the control group or the intervention group ($n = 4488$). The patients that were excluded from the study were patients who were known to have an allergy to CHG or if the physician thought the bathing would harm the patient. The outcomes were determined using CDC National Healthcare Safety Network (NHSN) definitions by qualified employees. These workers were blinded to the bathing experiment. Bathing was performed for 10 weeks. When the first bathing period was over, a two-week washout period occurred in which patients were bathed with non-antimicrobial cloths. After the two-weeks, patients switched to the alternate treatment for another 10 weeks. Bathing was performed once daily to rinse all body areas and nurses

used the manufacturer's instructions with all cloths used. Patients that became dirty after the first bath were given a second bath that day. The results of the study didn't show a significant difference in the rate of HAIs between CHG bathing periods and control periods. 55 infections were found during the CHG bathing period and 60 infections occurred during the control period ($p = .53$). Strengths of this study were random assignment by generating 5 numbers from 1 to 2 at random using software. Those assigned with a 1 began with the intervention bathing period and those assigned with a 2 began with the control bathing period. Infection control workers responsible for deciding the classification of infections were blinded to the treatment as well. Baseline clinical variables between the two groups were similar in regard to age, race, comorbid conditions and reliable and valid tools were used. Weaknesses of this study included that the study was only done over 10 weeks, and staff administering baths as well as patients and nurses were not blinded to the intervention and control groups.

Synthesis

Climo et. al (2013) showed that patients in the intervention group had a notable difference in reduction of the overall rate of HAIs ($p = .007$). Likewise, Swan et. al (2016) suggested that CHG bathing every other day showed a significant decrease in acquiring hospital infections ($p = .049$) compared with soap and water bathing. Bleasdale et. al (2008) showed a lower risk of HAIs in the intervention group compared to the control group ($p = .01$). Noto et. al (2015) did not find a significant difference in data between the chlorhexidine bathing periods and nonantimicrobial bathing

periods, but there was a decrease in infections between the control group and intervention group ($p = .53$).

The major weakness of all four of these studies was the inability to blind the patients, staff, and study team. All studies had similar baseline and demographics. Inconsistent bathing techniques and concentration of the CHG wipes may have skewed the results of the studies and impacted the risk of HAIs in ICU patients. Further studies need to be conducted to determine which concentration of CHG wipes to use, what proper bathing technique is required, and what frequency of bathing is best.

Clinical Recommendations

Research suggests that bathing with CHGW reduces the risk HAIs in ICU patients. There are not yet any guidelines about the proper bathing technique for these patients and which concentration of CHG is most effective in reducing the risk of HAI but using CHG wipes is a short-term solution that is non-invasive. Research confirms that using chlorhexidine wipes at least for part of the bathing period can reduce the risk of HAIs among ICU patients (Bleasdale et al., 2008; Climo et al., 2013; Noto et al., 2015; Swan et al., 2016). Further studies are needed and should examine which concentration of chlorhexidine to use and which technique is most beneficial to use when bathing.

References

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