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REVIEW

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Dressings used to prevent surgical site infection in the postoperative period of cardiac surgery: integrative review

Curativos utilizados para prevenção de infecção do sítio cirúrgico no pós-operatório de cirurgia cardíaca: revisão integrativa

Apósitos utilizados para prevención de infección del sitio quirúrgico en el posoperatorio de cirugía cardiaca: revisión integrativa

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ABSTRACT

Objective: To identify and describe which dressings are recommended to prevent surgical site infection in hospitalized adult patients after cardiac surgeries. **Method:** Integrative review carried out in the databases MEDLINE, LILACS, CINAHL, *Web of Science*, Cochrane and Scopus. Studies related to dressing in the postoperative period of cardiac surgery were selected. **Results:** Seven articles were included, with the following dressings: negative pressure wound therapy, silver nylon dressing, transdermal delivery of continuous oxygen and impermeable adhesive drape. The dressings that led to reduction of infection were negative pressure and silver nylon dressings. **Conclusion:** It was not possible to identify which dressing is most recommended, however, some studies show that certain types of dressings were related to the reduction of infection. Clinical trials with a rigorous methodological design and representative samples able to minimize the risk of bias should be conducted to evaluate the effectiveness of dressings in the prevention of surgical site infection.

DESCRIPTORS

Cardiovascular Nursing; Thoracic Surgery; Surgical Wound Infection; Review.

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INTRODUCTION

It is estimated that in 2012 cardiovascular diseases caused three out of 10 deaths, ischemic heart disease caused a total of 7.4 million deaths, and stroke caused around 6.7 million deaths, giving heart disease the status of leading cause of death worldwide[1].

Treatment of heart disease may be clinical or surgical. Surgery occurs when it offers a higher probability of cardiac rehabilitation than the clinical treatment. Therefore, surgeries occur with a significant frequency and require an effective planning for the nursing care of the postoperative period, which should be based on technical-scientific knowledge to ensure the quality of care provided to patients[2], and to prevent complications related to the procedure, such as Surgical Site Infections (SSI).

SSIs are one of the complications frequently observed in health care, with an incidence varying from 1% to 80%, depending on the type of surgery, the hospital environment, the surgical wound classification and the wound closure technique[3]. In Brazil, a study indicates a prevalence of SSI between 14% and 16% in hospitalized patients[4].

These infections increase the length of stay in the hospital and the rehabilitation time. In addition, they influence morbidity and mortality rates related to cardiac surgery[5].

Many factors are related to the development and the severity of the infectious process after cardiac surgeries, such as diabetes mellitus, obesity, chronic renal disease, left ventricular ejection fraction, malnutrition, age and smoking[6]. In addition, another aspect that may contribute to this complication is related to postoperative care, including incision dressings, an important measure to avoid contamination and proliferation of microorganisms and provide the ideal conditions for the wound healing process.

Nursing professionals are responsible for dressings, whose purpose is to ensure and assist in the treatment of the wound in such a way as to minimize the risk of infection and promote a favorable environment for the healing process. The nurse supervises this procedure, orients the professional who performs it and evaluates the wound evolution in order to choose the most appropriate dressing for the wound characteristics and the wound bed[7].

Dressings can act as a physical barrier to protect the incision and absorb exudate from the wound, keeping it dry, clean and avoiding bacterial contamination of the surrounding area[8-9]. Dressing can be classified according to their function (occlusive or absorbent), the type of material (e.g. hydrocolloid and collagen) and the physical form of the dressing (e.g. film and foam)[10].

In addition, some dressings are developed to control the wound environment, favoring the healing process, such as those that absorb exudate (e.g. some foams), those that keep the wound moist (e.g. hydrogel) or those that maintain hydration (e.g., hydrocolloids)[11].

The increase in the SSI rate in the postoperative period of cardiac surgery in the Service and the lack of standardization of the technique and dressings used to prevent these infections drove us to search the literature for answers for these concerns. Thus, the present study aimed to identify and describe which dressings are recommended to prevent surgical site infection in hospitalized adult patients after cardiac surgeries.

METHOD

Integrative review with the following phases for the preparation of the study: establishing the hypothesis or the review question; selecting the sample to be reviewed; categorizing studies; evaluating the studies; interpreting the results and presenting the review or synthesis of knowledge[12].

The PICO strategy was used to construct the guiding question of this work. PICO stands for: P – population and problem; I – intervention; C – comparison and O – outcome[13]. Thus, we considered P: hospitalized patient in the postoperative period of cardiac surgery; I: use of dressing in the postoperative period; C: any comparison between dressings used; O: surgical site infection. With this, the question was: what is the type of dressing recommended after cardiac surgeries to prevent surgical site infection in hospitalized adult patients?

The literature search was conducted from May to June 2017 in the following databases: Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library, The National Library of Medicine (NLM) in MEDLINE, Latin American & Caribbean Health Sciences Literature (LILACS), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science and Scopus. A combination of descriptors identified in the Medical Subject Headings (MeSH) and in the Health Sciences Descriptors (DeCS) and keywords was used, considering the main idea of the guiding question.

We also searched in references of systematic review articles and the randomized controlled trials identified in them, as well as randomized clinical trial registries (http://www.clinicaltrials.gov/; https://www.clinicaltrialsregister.eu/; http://www.controlled-trials.com.; http://apps.who.int/trialsearch/Default.aspx).

The main descriptors adopted in the search strategy were: *cardiac surgery*, *wound dressing* and *postoperative*, their synonyms and keywords, combined with the Boolean operators AND and OR. Chart 1 presents the search strategy adopted in the MEDLINE database, which was adapted to the other databases analyzed.

Chart 1 – Search strategy in the MEDLINE database – Curitiba, PR, Brazil, 2017.

("thoracic surgery"[MeSH Terms] OR ("thoracic"[All Fields] AND "surgery"[All Fields]) OR "thoracic surgery"[All Fields] OR ("cardiac"[All Fields] AND "surgery"[All Fields]) OR "cardiac surgery"[All Fields] OR "cardiac surgical procedures"[MeSH Terms] OR ("cardiac"[All Fields] AND "surgical"[All Fields] AND "procedures"[All Fields]) OR "cardiac surgical procedures"[All Fields] OR ("cardiac"[All Fields] AND "surgery"[All Fields])) AND ("wounds and injuries"[MeSH Terms] OR ("wounds"[All Fields] AND "injuries"[All Fields]) OR "wounds and injuries"[All Fields] OR "wound"[All Fields]) AND ("bandages"[MeSH Terms] OR "bandages"[All Fields] OR "dressing"[All Fields]) AND ("postoperative period"[MeSH Terms] OR ("postoperative"[All Fields] AND "period"[All Fields]) OR "postoperative period"[All Fields] OR "postoperative"[All Fields])

The scientific articles related to the theme were selected, that is, those that conducted research on dressings used in the postoperative period of cardiac surgery, written in English, Portuguese and Spanish and published in the period from 2007 to 2017.

Exclusion criteria were: articles that were not published within the determined period, those with themes that differed from the research problem, review articles, pilot studies, clinical guidelines, expert opinions, articles on cardiac surgery in neonates or children, and those that conducted experimental research on animals.

The articles found in the databases were selected by two independent reviewers, who reviewed the titles and abstracts of the publications identified applying the eligibility criteria. In case of doubt or disagreement, a third reviewer was asked for his opinion regarding the inclusion or not of the study. Kappa[13] was used to assess the level of agreement between the reviewers, and reached the value of 0.852. Kappa evaluates interobserver agreement and varies from 1 (total agreement) to -1 (total disagreement)[14].

After this process, the form adopted to identify the characteristics and data of the articles included: identification of the study (title, journal, year of publication, issue and number), language, type of publication, objective, applied method, ethical aspects, intervention, outcome, financing and opinion of the reviewer.

The methodological quality of the randomized controlled trials was analyzed according to the Jadad scale[15], which assigns scores from zero to five for the method of randomization; blinding, description of losses and exclusions. The study is considered of poor quality if it scores less than three.

The Newcastle-Ottawa Scale (NOS)[16] was used to assess the internal validity and risk of bias of the cohort studies. The scale evaluates three categories of this study design, which are: patient selection (0-4 stars), comparability of patient cohorts (0-2 stars) and outcomes (0-3 stars). The NOS score ranges from zero to nine[16]. A study can be assessed with a maximum of one star (*) to each item within the "Selection" and "Outcome" categories. A maximum of two stars can be assessed to each item in the "Comparability" category"[16].

Due to the heterogeneity of the studies, the data were grouped and analyzed descriptively by type of intervention. There was no conflict of interest in the development of this review and there was no type of funding for the study.

RESULTS

From the combination of the described keywords, 130 studies were identified, of which 13 were in MEDLINE, 6 in CENTRAL, 60 in Scopus, 27 in Web of Science, 1 in CINAHL, 18 in LILACS and 5 in the manual search. Of these, 39 were duplicates and 83 did not meet the inclusion criteria, therefore, 7 studies were included in this review, as shown in Figure 1.

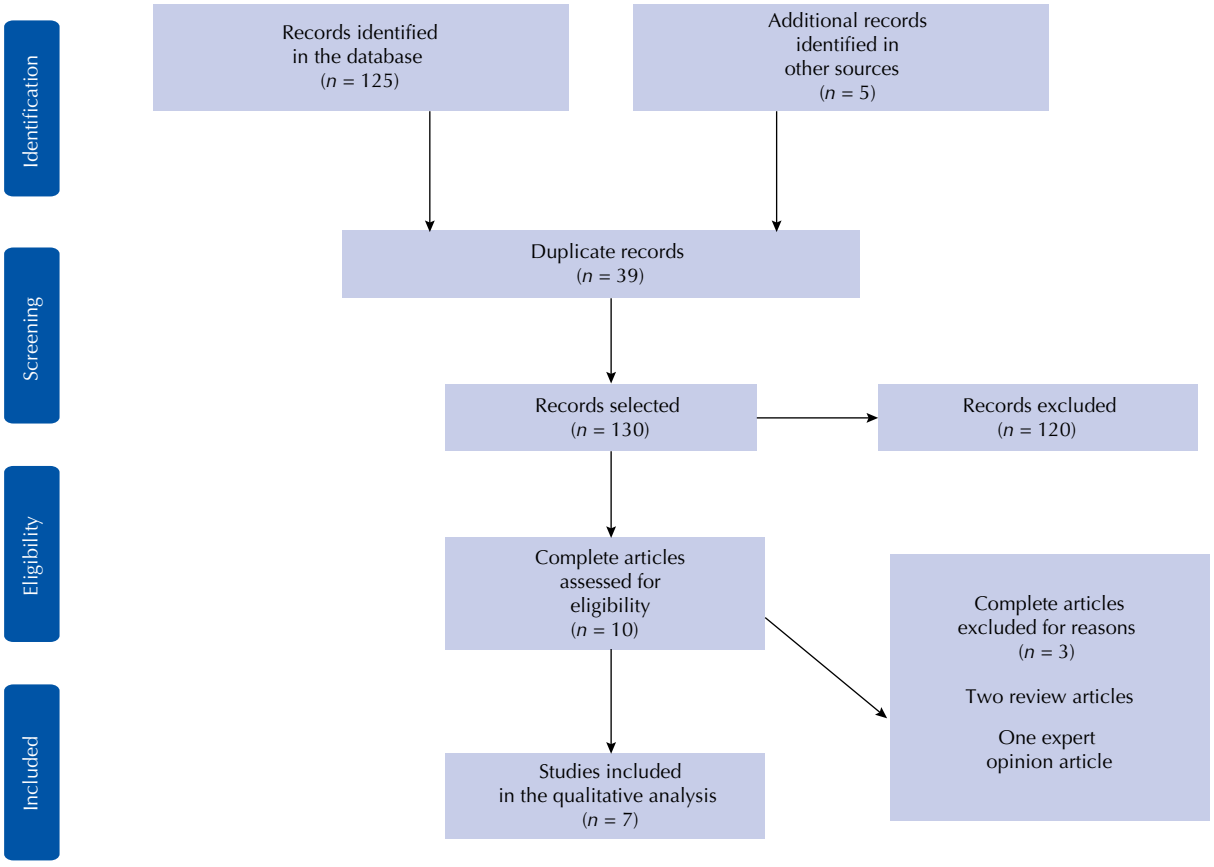

Figure 1 – Flowchart of the identification, selection and inclusion of articles, according to Prisma criteria.

The seven articles selected are identified as A1[17]; A2[18]; A3[19]; A4[20]; A5[21]; A6[22]; A7[23]. Some data regarding the articles included in this research, such as identification of the study, authors, place and date of publication and study design are presented in Chart 2. The studies were published from 2007 to 2014. Regarding the authors' profession, only one study (A3[19]) had the participation of a nurse as author of the research, and the other articles were written by physicians.

The methodological characteristics of the articles included were similar in five of them: A1[17]; A3[19]; A5[21]; A6[22]; A7[23] – observational design –, and two, A2[18] and A4[20], were randomized clinical trials (Chart 2).

The analysis of the results of the selected articles identified four types of therapies used in the postoperative period of cardiac surgery: negative pressure wound therapy; transdermal delivery of O_2; Silver nylon dressings; Water and air impermeable adhesive drape (*Opsite™*) x water- and air-permeable absorbent dressing (*Hansapor™*) (Chart 2). These therapies were evaluated on the wound healing process, SSI incidence and differences in SSI rates.

The evaluation of the methodological quality of the randomized clinical trials revealed scores from 3 to 5 according to the Jadad scale, considered good quality. Observational studies reached 3, 4, 6 and 7 stars, demonstrating that only three studies presented good methodological quality (Chart 2).

Chart 2 – Identification of the study, title, country/year of publication, design, intervention, outcomes and score according to the evaluation instrument.

ID	Title	Country/ Year	Design	Intervention	Outcomes	Evaluation Instrument
A1[17]	Prevention of post sternotomy wound infections in obese patients by negative pressure wound therapy	Germany 2013	Prospective case-control observational	Case – negative pressure wound therapy (*Prevena™ – Incision Management System*) Control – conventional sterile dressings	**Infection** Case – Three of 75 (4%) patients presented infection Control – 12 of 75 (16%) (OR= 4.57; CI95%= 1.23-16.94, p = 0.026)	NOS* 6
A2[18]	Transdermal Oxygen Does Not Improve Sternal Wound Oxygenation in Patients Recovering from Cardiac Surgery	United States, 2008	Randomized	Intervention – transdermal continuous oxygen therapy (*EpiFLO®* oxygen generators) Control – transdermal continuous oxygen therapy (innactive *EpiFLO®* oxygen generators)	**Reduction of infection** Increasing FiO_2 from 30% to 50% increased arterial oxygen from 99 (84 –116) to 149 (128 –174) mmHg (p < 0.001) and sternal wound tissue oxygen tension from 23 (16 –33) to 27 (19 –38) mmHg (p < 0.001) Local oxygen delivery did not improve tissue oxygenation: 24 (14-41) *vs.* 25 (16-41) mmHg (p=0.88)	JADAD** 5
A3[19]	A Clinical Trial to Investigate the Effect of Silver Nylon Dressings on Mediastinitis Rates in Postoperative Cardiac Sternotomy	United States, 2008	Retrospective/ prospective study, observational	Case – silver nylon dressing (*Silverlon® Island Dressing*) Control – standard gauze dressings	**Mediastinitis** Case – no patient (0%) developed mediastinitis Control – 13 patients (1.1%) developed mediastinitis ($\chi 2 = 3.88$, p<0.05).	NOS* 6
A4[20]	Randomized clinical trial comparing two options for postoperative incisional care to prevent poststernotomy surgical site infections	The Netherlands, 2007	Randomized trial	Intervention – water and air impermeable adhesive drape (*Opsite™*). Control – water- and air-permeable absorbent dressing (*Hansapor™*).	**Surgical site infection** There was no significant difference in the incidence of sternal surgical site infection between groups (2.6 *vs.* 3.3%)	JADAD** 3
A5[21]	First experience with a new negative pressure incision management system on surgical incisions after cardiac surgery in high risk patients	Spain, 2011	Prospective cohort, observational	Negative pressure wound therapy (*Prevena™ – Incision Management System*) The dressing contains ionic silver (0.019%)	**Complete wound healing** Wounds and surrounding skin showed complete wound healing with the absence of skin lesions due to the negative pressure after removal of the Prevena™ dressing.	NOS* 3
A6[22]	Effect of surgical incision management on wound infections in a post sternotomy patient population	Germany, 2014	Prospective cohort, observational	Control – conventional sterile wound tape dressings Intervention – negative pressure wound therapy (*Prevena™ – Incision Management System*)	**Wound infection within 30 days.** Significantly lower infection rate than control group: 1.3% (3 patients) *vs.* 3,4% (119 patients), respectively (OR = 2.74; p<0.05)	NOS* 7
A7[23]	Does Negative Pressure Wound Therapy Have a Role in Preventing Post sternotomy Wound Complications?	United States, 2009	Retrospective cohort, observational	Negative pressure wound therapy	**Infection** No cases of sternal wound infection were found	NOS* 4

*NOS – *Newcastle-Ottawa Scale*. The NOS score ranges from zero to nine. A study can receive one star (*) for each item numbered within the "Selection" and "Outcome" categories. A maximum of two stars can be assigned for each item in the "Comparability" category[16]. The maximum number of stars that each study can receive is nine.

** The final score of the Jadad Scale ranges from 0 to 5 points: studies that receive scores <3 are classified as low quality and studies with scores ≥ 3 have high methodological quality[15].

Negative pressure wound therapy

The use of negative pressure wound therapy (NPWT) was proposed in four articles (50% of the research sample). A1[17], A5[21] and A6[22] used Prevena™ – Incision Management System, and A7[23] did not reveal the brand used.

The articles A1[17] and A6[22] had some authors in common. The main difference between them was the size of the sample, the target population and the time frame. In A1[17], the researchers observed the use of NPWT in obese patients after cardiac surgery (group-intervention, n=75), covering the wound with a foam dressing immediately after skin suturing and connecting it to a device that exerts a negative pressure of -125mmHg, applied for 6 to 7 days. In the control group (n=75), they conducted a prospective study with the same profile of patients, who had used conventional sterile dressings, standard at the institution, which were changed on the first or second postoperative day. The main results observed were: three patients with wound infections in the intervention group and 12 in the control group. One patient had sternum dehiscence in the intervention group, compared to three patients in the control group. In addition, when the foam dressing was removed, the incision was closed in 71 patients in the intervention group.

In A6[22], the authors did not restrict the population to patients with high risk of developing SSI. Therefore, the sample was composed of 237 patients in the intervention group and 3,508 patients in the control group (a historic cohort with "all the newcomers" who underwent cardiac surgery with median sternotomy between January 2008 and December 2009 as control group). The dressings were applied the same way as described in A1[17]. After the analysis of results, three patients (1.3%) in the intervention group developed surgical site infection compared to 119 patients (3.4%) in the control group. After 6-7 days with NPWT, the incision was primarily closed in 234 patients (98.7%) of the intervention group. In the control group (n=3,508), the incidence of sternal wound infection requiring surgical revision (n=119) was 3.4% (odds ratio [OR] 2.74; $p < 0.05$).

In the research conducted in A5[21], NPWT was tested in 10 patients who were at high risk for developing surgical wound complication, based on a validated risk score. The dressing was applied on the incision at the end of the surgery and left in place for 5 days with a continuous application of -125 mmHg negative pressure. The incisions were inspected after removal of the dressing and reevaluated after 30 days. All patients showed complete wound healing and no cutaneous lesions due to negative pressure, leading to the conclusion that the system appears seems safe, easy to use, and helps achieve wound healing without the risk of developing complications.

In the investigation conducted in A7[23], 57 patients at high-risk for developing wound complications and predisposed to develop SSI were submitted to NPWT after sternum suture. First, one layer of nonadhesive gauze (Adaptic®) was applied to the incision, followed by a silver polyurethane foam (GranuFoam Silver®) and an occlusive transparent dressing. After this procedure, a small incision was made in the dressing and suction was applied through a negative pressure system device (*V.A.C. ATS Therapy System*®). The dressing was left in place for 4 days. In this study, no cases of deep or superficial SSI were encountered, as well as no amount of exudate in the wound. Therefore, it concludes that NPWT is well tolerated, easily applied and appears to positively improve wound healing in patients at high risk.

Transdermal delivery of O_2

Transdermal oxygen administration was evaluated in A2[18]. Supposedly, this measure would improve oxygenation in the wound and consequently assist in the healing process and reduce the risk of infection. A randomized study was performed with 24 patients, divided into two groups: the active group (n=12) received two generators (EpiFLO®) that provided oxygen at 6 mL/h into an occlusive wound dressing; the inactive group (n=12) received the same device, but with no oxygen supply. A temperature probe and an oxygen probe were positioned approximately 5 mm below the skin, where they remained for 2 days after surgery. The researchers concluded that transdermal oxygen administration did not assist in wound healing and therefore does not appear to be useful in reducing SSI, certainly because the skin is impervious to oxygen.

Silver nylon dressings (Silverlon® Island Dressing)

The objective of the study in A3[19] was to determine if a silver nylon dressing would be more effective in reducing mediastinitis than gauze dressings. The control group consisted of 1,235 patients, whose data were collected retrospectively in records from 24 months. A conventional dressing with sterile gauze and adhesive tape was applied after surgery, and remained in place for 24 hours. After that, dressings were changed daily or with an increase in frequency depending on the wound exudation. In the intervention group, the sample was composed of 365 patients whose wounds were covered with silver nylon dressing (Silverlon® Island Dressing), left in place for 7 days. The analysis of the data showed that 13 patients in the control group developed mediastinitis, while none in the treatment group did. This led to the conclusion that silver nylon dressings were statistically related to lower mediastinitis rates, despite the need for larger studies to completely delineate the effects of dressing on mediastinal infections.

Water and air impermeable adhesive drape (Opsite™) x Water- and air-permeable absorbent dressing (Hansapor™)

A randomized clinical trial was developed in A4[20] to compare two types of dressings used in incisions of patients who underwent sternotomy. The intervention group (n=615) received a water and air impermeable adhesive drape (Opsite™) to protect the incision from exogenous contamination or inoculation of endogenous pathogens. The dressing was left in place for 48 hours, and after this period it was changed daily. In the control group, 570 patients were treated according to the institution's protocol with an air-permeable

absorbent dressing (Hansapor™), placed under sterile conditions at the end of surgery and changed daily under aseptic conditions. In both groups, the wound was left uncovered after 72 hours if there were no signs of infection or exudation. SSI was observed in 35 patients (3%), and there was no significant difference between the groups (2.6% in the intervention group and 3.3% in the control group).

DISCUSSION

The present review aimed to identify and describe which dressings are recommended to prevent surgical site infection after cardiac surgeries. Five types of therapies were identified: Negative pressure wound therapy; Transdermal delivery of $O_{2;}$ Silver nylon dressings; Water and air impermeable adhesive drape (Opsite™) x Water- and air-permeable absorbent dressing (Hansapor™). The outcomes evaluated were the wound healing process, SSI incidence and differences in SSI rates.

Negative pressure wound therapy and silver nylon dressings led to reduction of surgical site infection in the postoperative period of cardiac surgery.

Another factor to be observed in the publications of this review is the place where the studies were developed. Seven (100%) articles in the sample were conducted in countries with a very high human development index[24], which demonstrates that SSI is a very serious clinical complication in developed countries, requiring larger investigations to find effective solutions and reduce high rates and hospital costs[25].

Regarding the design of the studies, two of them (28.5%) – A2[18] and A4[20] – were randomized clinical trials, considered of good quality according to the Jadad scale. Systematic reviews of randomized clinical trials are considered as Evidence I. The randomized clinical trial is the ideal design to evaluate the effects of interventions, however, it is not suitable to answer certain research questions, mainly risk factors or prognosis[26].

Five studies (71%) – A1[17]; A3[19]; A5[21]; A6[22]; A7[23] – are observational. When it is not possible to perform randomized clinical trials, observational studies represent a viable alternative. Observational studies have been increasingly considered for health decision making. Classification systems, such as the Grading of Recommendations Assessment, o Development, and Evaluation (GRADE) and the Center for Evidence-Based Medicine accept evidence from observational studies[27-28]. Only three studies (A1[17], A3[19] e A6[22]) presented good methodological quality according to the Newcastle scale.

Regarding sample size, in article A1[17] the number of patients included in the study group was equal to that of the control group, which leads to greater reliability in the results. On the other hand, in A6[22] the authors included 237 patients in the study group and 3,508 patients in the control group, compromising the statistical analysis of the efficacy of NPWT over conventional sterile dressings. The same occurred in A3[19], in which the control group had a little more than three times the sample size of the study group.

Other important aspects to be emphasized are related to the treatment of the surgical wound, such as the ideal period for the first dressing, mentioned only in the articles that made comparative studies. A1[17] and A6[22] pointed out that in their experiments, the dressing was changed in the first or second postoperative day. In A3[19] the dressing was changed 24 hours after the surgery. All of them highlighted that in case of excessive exudate, the dressing should be changed before the recommended time. In addition, none of the studies explained the reason for determining the duration of the dressings tested, so that in each article the period established was different, with the exception of studies A1[17] and A6[22], whose main author was the same.

These doubts could be clarified in the recommendations and guidelines for prevention of SSI, but the studies seem inconclusive to accurately affirm the ideal period for the first dressing and the adequate length of stay. The US Centers for Disease Control and Prevention (CDC) guidelines recommend covering the incision with a sterile dressing for 24 to 48 hours. The agency also emphasizes that the lack of protocols for home incision care dictates that the planning and counseling given to the patient at discharge is individualized, according to the needs of each individual[29].

A Brazilian study recommends wound care with a simple cleaning with 0.9% saline solution and dressing with sterile gauze. The dressing should be changed daily or whenever it is saturated with excessive exudation. The permanence of the dressing is justified for up to 72 hours, and after this period the wound must be kept open[30].

In the United Kingdom, The National Institute for Health and Care Excellence (NICE) was created to guide health practitioners and the general public about public health problems, promote healthy living habits, and standardize information. In 2008, NICE published a guideline for the prevention and treatment of surgical site infections, in which they recommended daily wound cleansing with sterile saline up to 48 hours after surgery[31]. In 2013, an update of the evidence from this guideline does not recommend a specific type of dressing, but suggests that the incisions are covered with a dressing that absorbs exudate and promotes a moist wound bed, although silver nylon dressings appear to be more effective[32], corroborating the results found in the research carried out in A3[19].

The latest updates on this topic were published by the World Health Organization, which launched global guidelines for the prevention of SSI in 2016, arguing that advanced dressings should not be used instead of the standard dressing on first-intention wound healing. The authors justify this recommendation based on the analysis of 10 randomized clinical trials, which presented a low-quality scientific evidence, so there is currently no conclusive evidence to prove the superiority of advanced dressings in relation to the standard dressing with sterile gauze. As a suggestion, the guideline points out a special interest in investigating the use of silver-containing dressings in orthopedic and cardiac surgery in order to prevent infections. In addition, reactions and possible side effects from exposure to silver nanoparticles contained in dressings should be considered in the studies. The guideline also highlights the importance of knowing how long the dressing should be kept and its relationship with the prevention of SSI[33].

The criteria to determine the duration of the dressings suggested by some of the guidelines seem to be related to the wound healing process, although no recommendation has clarified this aspect. The inflammatory phase of wound healing usually occurs 2 to 3 days after the procedure, therefore, assessing the need to cover the lesion after this phase directly influences the SSI rate and could help in the development and implementation of protocols for wound care in the postoperative period[34].

A systematic literature review on the predictors of SSI after cardiac surgery concluded that the articles analyzed did not investigate postoperative wound care and highlighted the importance of knowing the appropriate time for the first dressing[34].

Thus, this continues to be an area of great interest and relevance for the nurse seeking quality in the care provided to the patient in the postoperative period of cardiac surgery. Thus, the care given to these patients requires specific, continuous and safe practices[35].

Some limitations of this integrative review are the low number of studies with the same design and the delimitation of the search period, which may have restricted the number of articles included and impaired the evaluation, comparison and effectiveness of curatives used for prevention of SSI.

CONCLUSION

From the data presented in this integrative review, it was observed that the evidence was not sufficient to recommend a specific dressing for the prevention of SSI. However, a reduction of SSI was observed with negative pressure wound therapy and silver dressings.

Thus, clinical trials with rigorous methodological designs and significant samples to minimize the risk of bias, both in the control group and in the intervention group, should be conducted. In addition, studies should present a clear description of the characterization of the participants, the evaluation of the time established for dressings change and the impact on infection prevention. The same procedure is recommended for dressings with 0.9% saline solution and sterile gauze.

These studies are essential to establish the best evidence on the use of dressings that ensure patient safety, reduce rates and risks of infectious complications related to cardiac surgery, and reduce hospital costs, which may contribute to the development and implementation of protocols for the prevention of SSI.

RESUMO

Objetivo: Identificar e descrever quais curativos são recomendados após cirurgias cardíacas, para a prevenção de infecção do sítio cirúrgico, em pacientes adultos hospitalizados. **Método:** Revisão integrativa realizada nas bases de dados MEDLINE, LILACS, CINAHL, *Web of Science*, Cochrane e Scopus. Selecionaram-se estudos relacionados ao curativo no pós-operatório de cirurgia cardíaca. **Resultados:** Foram incluídos sete artigos, com os seguintes curativos: terapia de feridas por pressão negativa, curativo de náilon impregnado com prata, terapia transdérmica de oxigênio contínuo e cobertura adesiva impermeável. Os curativos que apresentaram redução de infecção foram os por pressão negativa e de náilon impregnado com prata. **Conclusão:** Não foi possível identificar qual curativo é mais recomendado, no entanto, alguns estudos evidenciam que certos tipos de curativos foram relacionados com a redução de infecção. Sugere-se a realização de ensaios clínicos com rigorosa descrição metodológica e amostras representativas para minimizar o risco de viés e avaliar a efetividade dos curativos na prevenção de infecção do sítio cirúrgico.

DESCRITORES

Enfermagem Cardiovascular; Cirurgia Torácica; Infecção da Ferida Operatória; Revisão.

RESUMEN

Objetivo: Identificar y describir cuáles apósitos se recomiendan tras cirugías cardiacas, para la prevención de infección del sitio quirúrgico, en pacientes adultos hospitalizados. **Método:** Revisión integrativa llevada a cabo en las bases de datos MEDLINE, LILACS, CINAHL, Web of Science, Cochrane y Scopus. Se seleccionaron estudios relacionados con el apósito en el posoperatorio de cirugía cardiaca. **Resultados:** Fueron incluidos siete artículos, con los siguientes apósitos: terapia de heridas por presión negativa, apósito de nailon impregnado de plata, terapia transdérmica de oxígeno continuo y cubierta adhesiva impermeable. Los apósitos que presentaron reducción de infección fueron los por presión negativa y de nailon impregnado de plata. **Conclusión:** No fue posible identificar cuál apósito se recomienda más. Sin embargo, algunos estudios evidencian que ciertos tipos de apósitos estuvieron relacionados con la reducción de infección. Se sugiere la realización de ensayos clínicos con rigurosa descripción metodológica y muestras representativas para minimizar el riesgo de sesgo y evaluar la efectividad de los apósitos en la prevención de infección del sitio quirúrgico.

DESCRIPTORES

Enfermería Cardiovascular; Cirugía Torácica; Infección de Herida Operatoria; Revisión.

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