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NEED OF SURGICAL DRESSING IN POSTOPERATIVE SURGICAL

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ABSTRACT

Surgical procedures are frequent these days, as well as the search for appropriate and safe procedures for patients, requiring more research and optimize nursing care. The correct procedures in the surgical dressing are also important to the success of the intervention.
Purpose: To identify the need for surgical dressing in postoperative.
Methods: A study has been carried out which consists in systematic literature revision and it has taken place where seven items were selected.
Results: The results of the analyzed studies on the subject, showed themselves to be quite different on the need for care/aseptic environment in the surgical wound in the immediate postoperative period and in use of surgical dressing.
Conclusions: It can be concluded that a majority of studies have shown that the occlusive surgical dressing, immediate after surgery with washing and disinfection standard, does not necessarily decrease the prevalence of surgical wound infection. Although some authors consider very important the realization of occlusive dressing in the first 48 hours after surgery.

INTRODUCTION

The evolution of concepts and practices in surgery has been memorable. In the illustrations of the Middle Ages and the Renaissance, amputation of limbs appeared as a paradigm of surgical abilities. The procedure was performed by surgeons barbers in one or two minutes without anesthesia, hemostasis and asepsis. The sick not always survived and sepsis was the phenomenon more frequent postoperative period. During the 20th century, the surgical level, witnessed to an expansion related to scientific progress, anesthetics, asepsis and antibiotic therapy (Leal, 2006), therefore at presente there is significant reduction of hospitalization time, related, not only, with aspects of the economic and scientific and technological advances, but also with a growing need for specialized nursing, individualized care attention, competence and comforting to the patient. Scientific and technological advances in the health area have promoted a significant increase in the number of surgical interventions, promoting the quality of care and patient safety, which allows you to recognize that we are in the *Era of Security* (Cassiani, Gimenes and Monzani, 2009). Despite the great advances in all areas of the surgery, the infection control continues to be a great challenge (Medeiros *et al*., 2003), mainly in what constitutes the infection of the surgical affected area. Horan *et al*. (1992) assumes that the identification of Sirurgical Site Infection (SSI) involves the clinical interpretation, laboratory and surveillance of definitions of the usage of standardized consistent programs. In accordance with these criteria, the SSI are classified an incisional or of an organ/área. When it

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involves only the skin and subcutaneous tissue is known as SSI superficial incisional and when it involves deeper layers of soft tissues is known as deep incisional SSI. The wound is defined as a rupture in the skin, to a greater or lesser extent in any part of the skin, mucosa or component (Prado, 2005), submitting the protective function of the skin. The wound arises due to a trauma (mechanical, chemical or physical), a surgery, or a complicated procedure.Its classification is an important form of systematization, necessary for the process of evaluation and registration. Acute wounds are originated from surgery or trauma and the repair occurs at the proper time, without complications. The postoperative period begins at the moment whwn the surgical dressing is performed on the patient and the patiente is transferred from the surgical table, extending the time necessary for their full physical recovery, functional and psychological (Pitrez and Pioner, 2003). Post-surgery consists in the recovery phase, beginning when the patient is admitted at the unit of postoperative care anesthetics and ends when the healing is completed. This process could take weeks or even months (Possari, 2004). The nursing care, in the postoperative period should be focuse on the patient recovery, prevention of complications resulting from the surgery itself and, also, related with the physiological state of the patient before the procedure as well as the education for self-care (Duarte *et al*., 2014).

The surgical dressing allows you to protect the incision closed primarily with sterile and aseptic techniques, during the first 48 hours (National Institute of Health Dr Ricardo Jorge, 2004). The epidemiological data still show alarming results, because in the prevalence surveys performed in Portugal in 1988, 1993 and 2003, the infection of the surgical area represented, respectively, 20%, 16% and 13.03% of healthcare-associated infections are detected, having been the most frequent type of infection in Surgery Services (National Institute of Health Dr Ricardo Jorge, 2004). Most current data reinforce that the SSI represented 18% of hospital infections, having been the type of infection more frequent in services of surgery, in the investigation of prevalence performed in Portugal in 2012 which covered 103 hospitals, carried out by the General Direction of Health (DGH). The infection is related to the surgical procedure, it occurs in the surgical incision area or near it (incisional or organ/area), in the first 30 postoperative days, or up to a year in the case of placing the prosthesis or implant/transplantation. The success in the prevention of SSI depends on the combination of several basic measures, including appropriate preparation pre-surgery evaluation, the surgical technique aseptic, antibiotic prophylaxis and post-surgery care, because the microorganisms that commonly cause SSI belong to the microbial flora of the sick patient (GHD, 2013).

The healing of the wound is a perfect and coordinated cascade of cellular and molecular events that interact to occur repaving and rebuilding the fabric. This event is a dynamic process that involves the biochemical and physiological phenomena that behaves in a harmonious way in order to ensure the restoration (Mandelbaum, Di Santis and Mandelbaum, 2003). There are several factors that interfere in the healing process, such as age, feeding and hydration oxygenation, hygienization, sleeping, infection, hemorrhage, associated diseases and location (GHD, 2013 and Mabtum *et al*., 2004). The nutrition and hydration are essential for the health and well-being of the patient, as well as the hygiene, because bad personal hygiene standards can affect the healing, thus causing a greater risk of contamination of the wound. For the patient being sick and in a hospital, is itself, sufficiently disruptive factors of sleep/rest, often with limitations in self mobilization, discomfort, pain, cold or heat, often without understanding wheather it is day or night and, with the perception that the family is only present for short periods (Alves, Rabiais and Nascimento, 2015). The systemic infection affects the healing process, because the wound needs white globules and nutrients as any other infection. The healing only occurs after the body has surpassed the infection. The most important factor in postoperative period, for the therapeutic success, is the surgery dressing and its technique execution (National Institute of Health Dr Ricardo Jorge, 2004). This is a procedure that consists of cleaning, disinfection and protection of a wound or a part of the body wich is traumatized, aiming to the prevention of infection, wound healing and minimizing cutaneous lesions. The fundamental objectives of the implementation of the surgery dressing are: create a physiological environment conducive to healing, evaluate the wound and the efficacy of the treatment, minimize skin lesions of the surrounding area, prevent and protect the wound infection from possible trauma, absorb the fluid leaking from the wound (exsudate), facilitate the drainage and evaluate the effectiveness of treatment (Elkin and Perry, 2005). The practice of the restricted aseptic principles and the careful observation of the surgical area is essential to reduce to a minimum the risk of postoperative care SSI (Rothrock, 2008). Having into account that the micro-organisms that usually cause SSI belong to the microbial flora of the sick, it becomes essential to expand/broaden the standards of good practice, check if they are being done, implement preventive measures and perform the Epidemiological Surveillance of infection of the surgical site through the European surveillance program (GHD, 2013). The infection associated to health care not only prolong hospitalization and are responsible for a substantial increase of costs, but also it increases the morbidity and mortality. It is necessary to demonstrate to the management bodies of the health units of a precise quantification of the costs involved to justify the cost of measures for the prevention and control of infection, which may prevent around 30% of these infections (GHD, 2009).

MATERIAL AND METHODS

A systematic review of the literature is one of the methods of research used in the practice of evidence-based and has as its purpose is to gather and summarize results of research on a given topic in a systematic and orderly manner, contributing to the knowledge of the theme (Mendes *et al*., 2008; Benefield, 2003). The method used was based on PICO strategy (acronym for patient, intervention, comparison and "outcomes"). This way it maximizes the inclusion of relevant information in different databases, focusing on the research object and avoiding unnecessary lookups (Santos, Pimenta e Nobre, 2007). Observing with rigor all steps required in the use of this method, the time interval between January and Feburary 2016, a protocol was developed for the identification of studies of interest to this work and that consisted of a search in the search engines: Ebsco and B-online, and on the

Table 1. Description of selected studies and main results of investigations

Study	Author(s)/ Year	Main Results
E1: "Tissue adhesives for closure of surgical incisions"	Dumville, J./ (England, 2014)	-In this study regarding the occurrence of infection, there was no significant difference between the conventional techniques and the application of tissue adhesives. -A comparative study was performed in the achievement of surgical dressing with specific adhesives and conventional techniques, whose result reflected a greater degree of satisfaction for both the sick and for the professionals in relation to conventional techniques. -In relation to handling time, specific decals were significantly less time consuming in their use. -For the remaining results of dehiscence and infection was not observed any difference between the comparative groups.
E2: "Effectiveness of negative pressure wound therapy/closed incision management in the prevention of post-surgical wound complications: A systematic review and meta-analysis"	Sandy-Hodgetts K. and Watts R./ (Austrália, 2015)	-The study revealed a statistically significant difference in regarding to infection, by the use of negative pressure therapy compared to standard surgical dressings. -However, due to the reduced size of the sample, no defenite conclusion can be reached regarding the efficacy of the use of therapy of wounds of negative pressure in the prevention of complications of surgical wounds. -However, there was an association demonstrated between the use of negative pressure therapy on surgical wounds and reduction of infection at surgical site.
E3: "Evidência & Investigação em Feridas: Contributos para uma Prática Clínica Avançada"/ "Evidence & Research in wounds: Contributions to an Advanced Clinical Practice"	Pereira, R et al. (Portugal, 2013)	-The research demonstrates that there is no significant difference between the option of using a surgical dressing occlusive 48 hours post-surgery clean, clean-contaminated and programed, in the prevention of the risk of infection, in relation to the use of a surgical dressing not occlusive dressing on the same conditions. -The decision of the use of drinking water in cleaning wounds, must be taken into account the quality of the water, the nature of the wounds, the general conditions of users, including the presence of morbidities, being unlikely, that the use of drinking water is harmful, when used in cleaning wounds. -The negative pressure therapy was assumed as the most effective means in the reduction of the dimensions of the wound, allowing a lower total time of healing in comparison with the treatment in damp conditions.
E4: "High-concentration supplemental perioperative oxygen and surgical site infection following elective colorectal surgery for rectal cancer: a prospective, randomized, double-blind, controlled, single-site trial."	Schietroma M. et al. (2014, Italy)	-Sample comprised of 81 patients, these 40 patients received oxygen at 80% during the surgery and the remaining 41 received 30% of oxygen. The oxygen was maintained for a period of 6 hours after the surgery. -The rate of infection of the surgical wound was 21% in patients submitted to oxygen 30% and in the group submitted to FiO2 of 80% was 15%. -The risk of SSI was 41% lower in the group with a FiO2 of 80%. -The arterial oxygen saturation was normal in both groups, however, the arterial partial pressure and subcutaneous oxygen was significantly higher in patients who received 80% oxygen than in those that received 30% percent of oxygen.
E5: "Effect of Triclosan-coated sutures on the incidence of surgical wound infection after lower limb revascularization surgery: a randomised controlled trial"	Turtiainem et al./ (Finland, 2012)	-In this investigation it was found that in total, 61 (22.1%) patients developed infection of the surgical wound. -The infection of the surgical wound occurred in 31 (22.3%) patients in the study group (applied surgical dressing with Triclosan) and in 30 (21.9%) patients from the control group (odds ratio 1.10, 95% confidence interval 0,61-2,01, p= 0.75). -The use of sutures coated Triclosan does not reduce the incidence of SSI after vascular surgery of the lower limbs.
E6: "Early versus delayed post-operative bathing or showering to prevent wound complications "	Toon C, et al (England, 2013)	-This study included 857 patients submitted to surgery for excision of minor skin in the context of primary care, in which the wounds were sutured after excision. -It was compared to the strategy of immediate postoperative bath or shower after 48 hours of surgery. -There was no statistically significant difference in the proportion of patients who developed surgical infection. -The infection of the surgical wound was 8.5% in group bathroom in the immediate postoperative period and 8.8% in group of bath after 48h of surgery.
E7:"Fundamentos básicos para a cirurgia e cuidados perioperatórios"	Santos e Kemp (Brazil, 2011)	-Concluded that on surgical wounds it must be applied a simple occlusive surgical dressing and that can be permanently removed after 24 or 48 hours. -The occlusive surgical dressing maintains the physiological environment necessary to healing the wound; the conservation of humidity on site prevents the formation of crust, which hinders the epithelization and increases the rate of reepithelialization in 30 to 50% and the synthesis of collagen in 20 to 60% in comparison to the exposed wounds. -The rate of infection when used occlusive dressings is significantly lower (2.6%) when compared with the conventional gauze bandages (7.1%) for clean wounds. -The finding of neutrophils, macrophages and lymphocytes viable with phagocytic capacity, associated with the presence of acid environment that inhibits the growth of pathogens such as Pseudomonas aeruginosa and Staphylococcus aureus and the formation of a barrier that prevents the external contamination are the factors responsible for the defense mechanism and for low infection rates of the host with covered wond with occlusive surgical dressing.

following databases: CINAHL Plus, PubMed/ MEDLINE, LILACS, Scielo, Web of Science, ScienceDirect, Cengage Learning, Academia Search Complete, Phsychology and Behavioral Sciences Collection, John Wiley & Sons, SportDiscus, The Joanna Briggs Institut, U.S. National Library of Medicine, Directory of Open Access Journals, Springer Science & Business Media and Repository of Scientific Open Access of Portugal. For the identification of relevant studies a search strategy was used, using the following descriptors *surgical dresssing* AND *surgical wound* AND *posoperative*. After meting all these protocol assumptions, some articles, that did not meet the requirements, were phased out, developing methodically a reductive process.

RESULTS

It was selected for the study seven articles that follow in Table. 1

DISCUSSION

The studies found on this theme reflect distinct results, on the need for care/aseptic environment in surgical wound in the immediate postoperative period and in the use of surgical dressing. In Portugal, the actions of professional nursing, in these situations, is governed in accordance with the standardized significations by protocols of its elements, pairs or the institution itself that represent. Some studies demonstrate benefits in the use of other techniques during the procedures in the achievement of surgical dressings, which we believe may be useful in reducing the infection of the surgical wound. It is standardized by the Standard Number 024/2013 dated 23/12/2013 of GHD, and is carried out by nursing professionals, in order to ensure the safety of the patient and contribute to the improvement of the quality of care. The incision should protect, initially, with a sterile dressing and aseptic technique, during the first 48 hours and do not remove the sterile dressing before the 48 hours, unless absolutely necessary. When it is necessary to make the surgical dressing, should be used aseptic technique, sanitizing one`s hands before and after the changes of surgical dressing or of any contact with the incision site. Clean with solute sterile wounds both, open and closed wounds. An open wound can heal by secondary intention, removing all remnants of organic matter (GHD, 2013 and GCLPPCIRA, 2015).

These facts will meet to those found in the study E7, when it concluded that on surgical wounds we must apply a simple surgical dressing occlusive that can be permanently removed after 24 or 48 hours, because the surgical occlusive dressing maintains the physiological environment necessary to the healing process the wound. The conservation of humidity on site prevents the formation of crust, which hinders the epithelization, being that in this way the surgical dressing occlusive increases the rate of reepithelialization in 30 to 50% and the synthesis of collagen in 20 to 60% in comparison to the exposed wounds, decreasing the rate of infection (2.6%). However in studies E3 and E4 one cannot observe any benefit with the use of an occlusive dressing surgical in 48h hours post-clean surgery, clean-contaminated and programed surgery. In the prevention of risk of infection, in relation to the use of a surgical dressing not occlusive dressing on the same conditions. The study E6, demonstrates that the bathroom in the immediate postoperative period or after the 48h of surgery, i.e. without aseptic care in the completion of the surgical dressing presents no statistically significant difference in the development of infection of the surgical wound. This study even suggests that the aseptic care in the manipulation of the surgical wound is not determinant for the risk of na infection (Toon *et al*., 2013).

However, there are studies that demonstrate that there are other factors that can reduce the risk of infection of the surgical wound. The study E4, showed that the administration of supplemental oxygen during surgery and during two hours in the immediate postoperative decreases the incidence of infection of surgical wounds. As well as in E2, which demonstrates the effectiveness of surgical wound therapy by negative pressure, that presenting statistically significant differences in their implementation. We consider important to study the effects of two techniques, since all procedures should be oriented to the good practices with a view to the decrease of infection of the surgical incision, promoting the reduction of time of internment and an increase of the associated costs. Sousa and Santos (2007) refers that the surgical wound care is a daily practice in the health care specialized department in primary health care, requiring that the nurse must have a capable and appropriate response. Also mentions that the surgical dressing although understood, at times, asa protective barrier that prevented the infection, i tis today questioned its efficacy of its use by the various problems associated with conventional dressings, as for example the humidity in the epithelization of the wound which slows the healing process and increases the prevalence of infection of the surgical wound. The study, E3, corroborates this idea in part demonstrating that there is no significant difference between the option of using a surgical dressing occlusive 48 hours after-clean surgery, clean-contaminated and programed, in the prevention of the risk of infection, in relation to the use of a surgical dressing not occlusive dressing on the same conditions.

The nurse has thus, a fundamental role in decision-making in relation to the treatment of surgical wound competing you to assess and to document the healing process of surgical wound, so as to implement strategies that best meet the needs of the patient so that the efficiency of the results are reflected in practice. However, even with physiological evidences of healing, the opinion of the sick in relation to the placing or not of a surgical dressing occlusive dressing in the surgical wound, should be considered. In this regard, comes the study E5, demonstrating that there is no statistically significant difference between the presence of infection of the surgical wound in surgical dressing occlusive or not occlusive (performed with triclosan). Regarding the advantages of the use of tissue adhesives in comparison with conventional techniques in healing of surgical wounds the study E1, demonstrates that the conventional techniques were significantly more effective in prevention of surgical wound dehiscence and time spent for the execution of the procedure, however, with regard either to the satisfaction of patients, either to the occurrence of infection in the surgical wound the results are not significant in relation to conventional techniques. As regards the infection of the surgical wound, the

majority of studies investigated (E2, E3, E4 and E6), demonstrates that the completion of the surgical dressing occlusive dressing with washing and standardized disinfection in the immediate postoperative does not show a reduction of its prevalence (infection).

As regards Nykiel *et al.* (2011), the practice is based on evidence has emerged to improve results in health, optimizing and ensuring the best care to the person. It founds and distinguished professional action. The Order of the Nurses intensifies that the knowledge acquired through research in nursing is used to develop an evidence-based practice, improve the quality of care and optimize the results in health, because a nursing practice based on evidence, as the incorporation of the best existing scientific evidence, coupled with the experience, opinion of experts and the values and preferences of users, promotes a commitment of all nurses that should be taken by governments, organizations and institutions of health and education, nursing researchers and associations of nurses (Order of Nurses, 2006).

Conclusion

In relation to the results of the studies analyzed, it can be noticed that in most of the studies there is no significant difference between the option of using a surgical occlusive dressing in the first 48 hours in relation to the use of a surgical dressing not occlusive dressing on the same conditions as well as it is unlikely that the use of drinking water is harmful, when used in cleaning wounds (taking into consideration the quality of the water, the nature of the wounds and the general conditions of its users). It was also noted that patients submitted to higher percentages of FiO2, in the intraoperative period, presented a more efficient healing. Finally it was also found that the application of negative pressure therapy, allowed a better healing in comparison with the treatment in damp conditions.

However, due to the scarcity of studies found in the context of the treatment of surgical wound with achievement of surgical dressing occlusive we suggest the implementation of more consistent control studies in services of surgery, coordinated by the committees of the infection control, so that it is possible to decrease the rate of infection associated to health care resulting from the provision of care, specifically the infection of the surgical site. The nurses undertake an important responsibility in the treatment of wounds, both in relation to technical knowledge for continuous evaluation of lesions and the quality and quantity of the dressings used. It is clear that such responsibility should be seen in a multidisciplinary context looming because the wounds cannot be seen as something separate from the person with those same wounds.
This study sought to clarify important aspects about the care in the treatment of surgical wounds and it needs to strengthen that of multiple responsibilities of nurses we can highlight the importance in the commissions of choice of material, in implementing the surgical dressing of surgical wound, training and supervision of the team and in the dissemination of the best scientific evidence. In this process of construction of care, nurses should be considered essential in the decision-making processes in which they are involved in. This it is necessary to integrate the contributions of the different benchmarks of care in order to provide continuous improvement in the quality of the health care.

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