Artigo de Revisão
Review Article
Artículo de Revisión

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

Complications of ostomy bowel and peristomal skin: evidence for nursing care

Complicações de estomia intestinal e pele periestoma: evidências para o cuidado de enfermagem

Complicaciones de la ostomía intestinal y de la piel peristomal: evidencia para el cuidado de enfermeira

Marina Bavaresco[I]; Geruza Maria da Silva Gonçalves Manfredini[II]; Camila Mendonça de Moraes[III]; Rogério Silva Lima[IV]; Silvana Maria Coelho Leite Fava[V]; Eliza Maria Rezende Dázio[VI]

ABSTRACT

Objective: to identify and analyze the evidence available in the literature on the complications of intestinal ostomy and peristomal skin. **Method:** integrative review in virtual databases, including randomized clinical trial studies published in English, Spanish and Portuguese, from May 2013 to May 2019. **Results:** 19 studies were selected and grouped into three categories: surgical techniques pointing innovative techniques about the type of sutures, resection and externalization of the intestinal loop, in addition to reinforcements to prevent hernias; skin barriers and collecting equipment, mainly addressing skin barriers for the prevention and treatment of dermatitis; nursing care showing care and follow-up programs such as home visits, consultations, and educational programs. **Conclusion:** the strategies described in the reviewed studies are important as they may enrich the knowledge of nurses and thus reduce complications of ostomy and peristome skin and improve the quality of life of these people.

Descriptors: Ostomy; complications; effects adverse; nursing care.

RESUMO

Objetivo: identificar e analisar as evidências disponíveis na literatura sobre as complicações de estomia intestinal e pele periestoma. **Método**: revisão integrativa, em bases virtuais de dados, com inclusão de estudos do tipo ensaio clínico randomizado, publicados nos idiomas inglês, espanhol e português, no período de maio 2013 a maio de 2019. **Resultados:** foram selecionados 19 estudos e agrupados em três categorias: técnicas cirúrgicas apontando técnicas inovadoras acerca do tipo de suturas, ressecção e exteriorização de alça intestinal, além de reforços para prevenção de hérnias; barreiras de pele e equipamentos coletores, abordando principalmente as barreiras de pele para prevenção e tratamento da dermatite; cuidados de enfermagem mostrando cuidados e programas de acompanhamento, como visitas domiciliares, consultas e programas educativos. **Conclusões:** As estratégias descritas nos estudos revisados são importantes na medida em que poderão enriquecer o conhecimento do enfermeiro e dessa forma reduzir complicações de estomia e pele periestoma e melhorar a qualidade de vida dessas pessoas.

Descritores: Ostomia; complicações. efeitos adversos; cuidados de enfermagem.

RESUMEN

Objetivo: identificar y analizar la evidencia disponible en la literatura sobre las complicaciones de la ostomía intestinal y la piel peristomal. **Método:** revisión integradora en bases de datos virtuales, incluidos estudios de ensayos clínicos randomizados publicados en inglés, español y portugués, de mayo de 2013 a mayo de 2019. **Resultados:** se seleccionaron 19 estudios y se agruparon en tres categorías: técnicas quirúrgicas que apuntan técnicas innovadoras sobre el tipo de suturas, resección y externalización del asa intestinal, además de refuerzos para prevenir hernias; barreras cutáneas y equipos de recolección, principalmente para abordar las barreras cutáneas para la prevención y el tratamiento de la dermatitis; atención de enfermería que muestra programas de atención y seguimiento, como visitas domiciliarias, consultas y programas educativos. **Conclusiones:** Las estrategias descritas en los estudios revisados on importantes ya que pueden enriquecer el conocimiento de las enfermeras y, por lo tanto, reducir las complicaciones de la ostomía y la piel peristómica y mejorar la calidad de vida de estas personas.

Descriptores: Estomía; complicaciones; reacciones adversas; cuidados de enfermería.

INTRODUCTION

Performing an ostomy causes changes in a person's life, involving physical, psychosocial and economic aspects, which can lead to changes in body image, self-esteem, interpersonal relationship, among other aspects. Although it is a life-saving surgical procedure, about 80% of these people have ostomy complications[1].

[I] Nurse. Expert. Masters' student, Federal University of Alfenas. Brazil. Email: marinabavaresco@hotmail.com
[II] Nurse. Expert. Masters' student, Federal University of Alfenas. Brazil. Email: geruzamsg@hotmail.com
[III] Nurse. PhD. Assistant Professor, Federal University of Rio de Janeiro. Brazil. Email: camila.moraes@unifal-mg.edu.br
[IV] Nurse. PhD. Assistant Professor. Federal University of Alfenas. Brazil. Email: rogerio.lima@unifal-mg.edu.br
[V] Nurse. PhD. Associate Professor, Federal University of Alfenas. Brazil. Email: silvana.fava@unifal-mg.edu.br
[VI] Nurse. PhD. Associate Professor, Federal University of Alfenas. Brazil. Email: elizadazio@yahoo.com.br

Received: Oct 4th 2019 – Accepted: Dec 28th 2019

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

These complications may be related to factors such as age, diet, absence of demarcation, surgical technique, high lack of effluent, scars and/or skin folds in the peristomal area, early physical effort, deficiency in self-care, infections, higher body mass index (BMI), ostomy location, inadequate collecting devices and lack of involvement of nursing in care[2,3].

A recent study points to a connection between complications related to ostomy and a deterioration in these people's quality of life[4]. In addition, complications demand specific care for the ostomy, additional use of equipment, adjuvants and costly supplies, and can interfere with these people's daily, occupational and social activities[5].

Several non-modifiable risk factors contribute to the development of complications. However, there are nursing interventions that can reduce the incidence of complications or early identify them. Therefore, improving the technical-scientific knowledge of the nurse is essential, since the assistance to the person with ostomy comprises a wide spectrum of pre and postoperative care, in addition to continuous monitoring[6].

Thus, it is essential for team members to socialize knowledge about the complications of ostomy and peristomal skin aiming to reduce and/or solve them, so they can contribute to the qualified practice of the care provided and to the improvement in these people's quality of life. Thus, the objectives of this study were to identify and analyze the evidence available in the literature on complications of intestinal ostomy and peristomal skin.

METHODOLOGY

This is an integrative literature review, aiming to add and summarize research results on a specific topic, orderly and systematically, contributing to the improvement of the knowledge on the topic and to the evidence-based practice (EBP)[7].

The integrative review went through the following steps: identification of the theme or formulation of the leading question, sampling or search in the literature of the studies, data extraction, evaluation of the studies, analysis and synthesis of the results and presentation of the review[8].

We used the PICOT[7] strategy based on the following leading question: what is the available evidence on complications related to intestinal ostomy and peristomal skin in adult patients in the last 5 years?

The inclusion criteria were: articles addressing complications of intestinal ostomy and peristomal skin in adults; available in English, Spanish and Portuguese languages; published from May 2014 to May 2019.

We chose to include articles with an experimental research design of the randomized trial (RCT) type, since the evidence from well-designed randomized controlled trials are classified as level II of evidence, representing strong evidence[7].

To search for articles, the National Library of Medicine (PUBMED), Latin American and Caribbean Literature in Health Sciences (LILACS) and Web of Science databases were selected and consulted. In this search, we used the controlled descriptors included in the Medical Subject Headings (MeSH): ostomy, ileostomy, colostomy, surgical stomas, complications, skin and adverse effects and Health Sciences Descriptors (HSD) in portuguese: *estomia; ileostomia, colostomia, estomas cirúrgicos, complicações, pele, eventos adversos*. In addition, the non-controlled descriptors “peristoma” and “peristomal” were established.

We used the EndnoteWeb managers and the Rayyan QCRI application to assist in the organization and selection of articles.

RESULTS

The search in the database identified a total of 13559 studies, of which 12335 were excluded due to duplicity and for being outside the established length of time. After applying the other inclusion criteria, out of 29 studies selected for full reading, 19 comprised the sample of this review, as shown in the flowchart in Figure 1.

Out of 19 studies included in the review[9-27], four of them were conducted in the Netherlands, three in the United States of America, two in India, two in China, two in Norway, one in Finland, one in Japan, one in Saudi Arabia, one in Turkey , one in Germany and one in Iran. English was the language of all the studies. Regarding the year of publication, five studies were published in 2017, three in 2015, three in 2016, three in 2018, three in 2019 and two in 2014.

Artigo de Revisão
Review Article
Artículo de Revisión

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

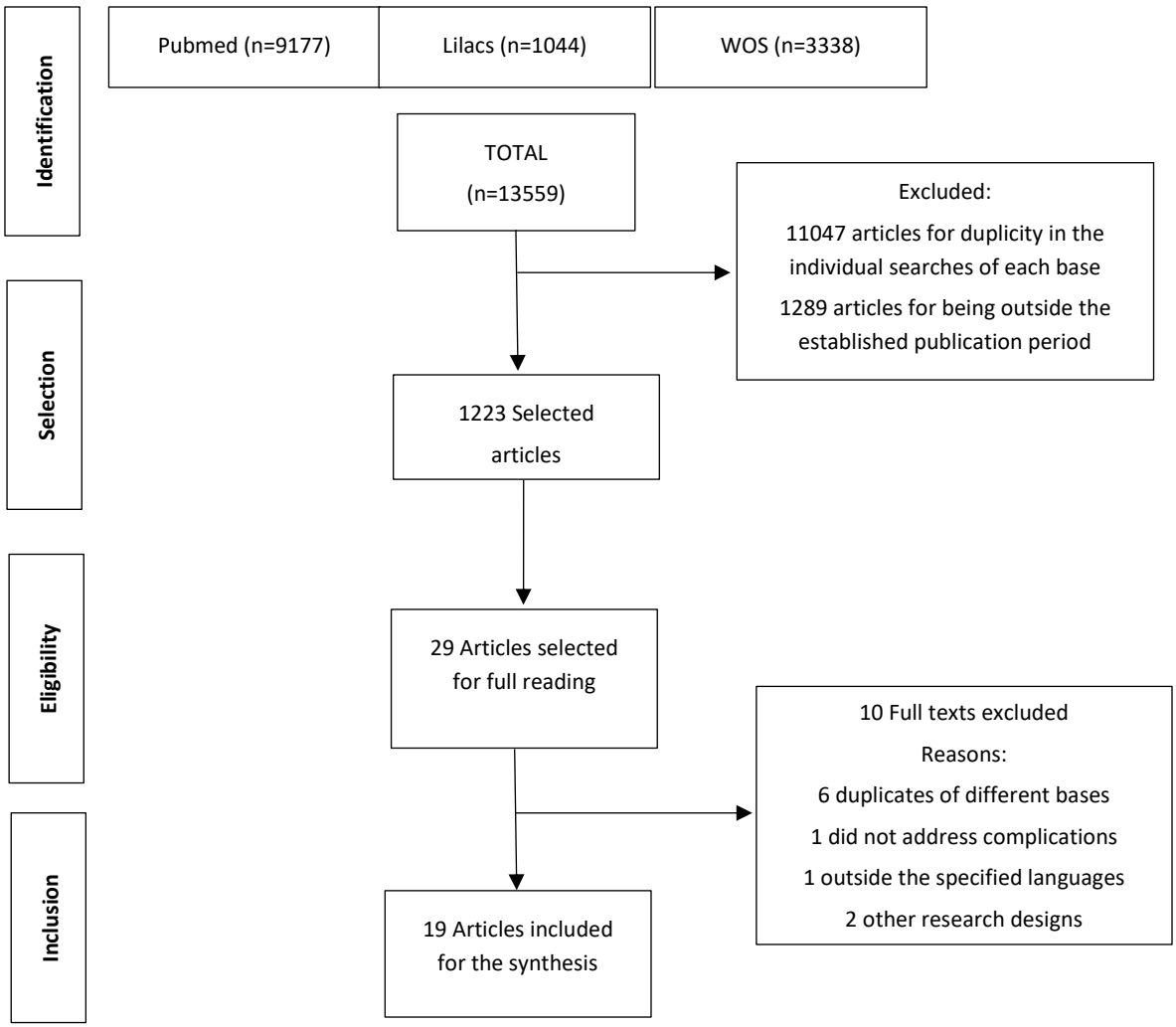

FIGURE 1: Flowchart of the article selection process, adapted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA).

The characteristics of the publications from 2014 to 2016 are in Figure 2.

The characteristics of the articles published from 2017 to 2019 are in Figure 3.

The methodological quality of the articles was assessed according to the items in the Consolidated Standards of Reporting Trials (CONSORT), which is a standardized and consolidated instrument for evaluating randomized controlled clinical studies, which was the design of the studies included in this review. Thus, all studies analyzed by the reviewers were classified as well-designed articles.

DISCUSSION

The analysis of the studies allowed the construction of three categories: surgical techniques, skin barriers and collecting equipment and nursing care.

Surgical techniques

In the surgical techniques category, a total of 10 articles[9-14,17,19,20,24] were linked, which studied the management of ostomy and peristomal skin complications. This category provides the professional with subsidies for the development of pre and postoperative care strategies related to the various surgical techniques and their consequences. Thus, the included studies were synthesized in order to allow the professional to understand the surgical specificities aiming to reduce or prevent the development of stoma and peristomal skin complications.

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

Year / Author	Objective	Conclusion
2014[9]	To evaluate whether placing non-cross connections of acellular dermal matrix (bioprosthesis) in a sublay position at the time of stoma construction could decrease the incidence of paraestomal hernia.	The placement of bioprostheses with a sublay technique did not increase the incidence or type of complications related to the stoma. However, the incidence of paraestomal hernia was not significantly different between control and treatment groups.
2014[10]	To compare two groups of low anterior resection (LAR) with and without deviation of ileostomy.	Low anterior resection with ileostomy has some advantages over low anterior resection without ileostomy in terms of anastomotic leak, postoperative ileus, resumption of diet, wound infection, small intestine obstruction and in terms of mortality and recurrence. However, complications related to the stoma were the main disadvantage in low anterior resection with ileostomy.
2015[11]	To investigate the lateral paralectal versus transectal technique in the prevention of paraestomal hernia.	The PATRASTOM study did not detect a difference between the formation of the transrectal and lateral paralectal stoma in relation to paraestomal herniation and complications related to the stoma and the patient's quality of life.
2015[12]	To evaluate whether the intraperitoneal placement of a two-component prophylactic surgical mesh around a colostomy at the time of laparoscopic abdominoperineal resection for rectal cancer is safe and can prevent paraestomal hernia.	Laparoscopic placement of a two-component prophylactic mesh around a colostomy significantly decreased the rate of clinically evident paraestomal hernia in one year after surgery. However, the overall rate of paraestomal hernia detected clinically or radiologically was high in both study groups. This suggests that this technique cannot prevent herniation of the abdominal cavity content, which can still occur through the mesh orifice and the trephine stretched in the abdominal wall.
2015[13]	To compare the use of mesh and the non-insertion of mesh at the time of the formation of a final colostomy in the formation of paraestomal hernia (PSH), complications and reoperations.	This study showed that the use of the mesh can reduce the rate of PSH formation without increasing complications.
2016[14]	To determine whether the placement of a retromuscular mesh at the colostomy site is a safe and effective procedure in preventing a parastomal hernia.	The short-term results of this study show no difference in stoma-related morbidity and mortality between the mesh and the non-mesh group. It is claimed that the prophylactic placement of a light polypropylene mesh at the stoma site is a viable and safe technique that is expected to reduce the incidence of parastomal hernias.
2016[15]	To assess the impact of education on stoma care in minimizing stoma-related complications.	This study proves the effectiveness of education in stoma care in minimizing skin complications in patients with ostomy. We can say that adequate education in stoma care, as well as appropriate nursing care, had a positive impact in minimizing stoma complications.
2016[16]	To determine whether an improved post-surgery recovery program (ERAS) way can reduce total postoperative hospital stay compared to common treatment, mainly as a result of reduced morbidity.	The main benefit of extended preoperative counseling and stoma education was that patients were more responsive and able to be taught directly after the operation. However, the results of this study do not allow us to conclude that stoma counseling and education or another ERAS item is more effective than other interventions.

FIGURE 2: Presentation of the articles included in the integrative review published from 2014 to 2016.

To change the normal path of eliminations that results in the ostomy, surgical techniques with various forms of sutures, exteriorization of the intestinal loop and the use of tissue reinforcement (meshes) have been used in order to minimize the appearance of postoperative complications.

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

Year / Author	Objective	Conclusion
2017[17]	To compare the results of creating a loop colostomy with and without a support rod.	The use of a stoma rod to support a loop colostomy does not reduce the rate of stoma retraction. Complication rates are significantly higher when a stoma rod is used. Therefore, the use of a stoma rod during the creation of a loop colostomy should be avoided.
2017[18]	To investigate whether a new pathway of treatment could lead to a reduction in the number of stoma-related complications and, if so, to what extent; To examine whether this study would lead to a better quality of life at acceptable costs, compared to common perioperative care for patients with ostomy.	The new care pathway does not reduce the number of complications related to the stoma, but it leads to a better quality of care and life, with similar costs.
2017[19]	To determine whether the use of the ostomy rod was useful in preventing stoma retraction when applied to deviation loop ileostomies in the treatment of ulcerative colitis; To clarify the incidence of dermatitis by using an ostomy rod as an adverse event.	Ostomy rod does not need to be used routinely in loop ileostomies. It was considered unnecessary for the prevention of ostomy retraction, even in patients with ulcerative colitis whose wound healing may be deficient due to malnutrition, the use of steroids or the presence of immunosuppressive conditions, and its use may increase the risk of dermatitis.
2017[20]	To determine whether the increase in the abdominal wall at the ostomy site by a light mesh is a safe, viable and effective way to prevent a parastomal hernia (PSH).	Prophylactic increase in the abdominal wall with a retromuscular polypropylene mesh at the ostomy site is a safe and viable procedure, with no adverse events. This significantly reduces the incidence of PSH.
2017[21]	To evaluate whether moldable skin barriers (collecting equipment) can reduce the incidence of irritating dermatitis around the stoma, reduce operating length of time and improve self-care satisfaction in elderly patients with stoma.	The moldable skin barrier can reduce the incidence of irritant dermatitis and improve satisfaction with self-care in elderly patients with stoma. The moldable skin barrier should be routinely recommended for elderly patients with stoma.
2018[22]	To examine the effect of home health care on healing peristoma skin complications and quality of life (QOL).	Home nursing care was effective in treating complications of peristomal skin, although there was an improvement in many patients in the control group. In both groups, the QOL scores achieved in the final evaluation were significantly better compared to the initial one.
2018[23]	To compare the costs related to ostomy and the incidence of peristomal skin complications due to the use of skin barriers with and without ceramide.	The ostomy skin barrier infused with ceramide reduced costs and helped to reduce complications of peristomal skin.
2018[24]	To compare the rates of fecal leakage between ileostomies sutured intracutaneously and transcutaneously; - To compare skin irritation, quality of life and costs between ileostomies formed by the two suture methods over a 3-month follow-up period.	The ileostomy intracutaneous suture was not superior to the transcutaneous one in relation to the peristomal leak of feces. In fact, the overall leak rate was significantly higher in the IC group, which is the opposite of the authors' hypothesis that transcutaneous suture would promote leakage. The incidence of stoma-related complications was high in this study.
2019[25]	To evaluate the effectiveness of cholestyramine in the management of burning and pruriting after ileostomy.	The results showed that the topical formulation of cholestyramine was well tolerated by patients and had significant effects in reducing burning and pruriting after ileostomy.
2019[26]	To explore the effect of continuous nursing care on patients with enterostomy in treatment, in the community and at home.	The results of this study show that through the tripartite collaboration of hospitals, community nursing staff and patients' relatives, the quality of life of patients was effectively improved, and the difference is significant compared to patients who did not implement continuous care.
2019[27]	To determine differences in the extent of normal skin trauma resulting from the application and serial removal of two types (A and B) of skin barriers in the ostomy.	Product A (CeraPlus) was significantly less harmful to the underlying epidermis when compared to Product B, as demonstrated by skin peeling, edge irritation, loss of transepidermal water and in the overall comparison rating.

FIGURE 3: Presentation of the articles included in the integrative review published from 2017 to 2019.

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

Thus, as an option for the treatment of rectal cancer, low anterior resection with ileostomy deviation has advantages in terms of anastomotic leak, wound infection, resumption of diet, mortality and recurrence, but the complications related to the stoma, such as skin retraction, obstruction and excoriation, are identified as the main disadvantage for low anterior resection with ileostomy[10].

Corroborating this information, in people with ileostomies, skin complications can occur in up to 65% of cases[28]. One of the contributing factors for its appearance is the leakage of effluent on the skin, which may be related mainly to the inappropriate location of the stoma[29].

Thus, when comparing fecal leak rates between ileostomies sutured intracutaneously versus those sutured transcutaneously, the overall leak rate was significantly higher with the use of intracutaneous sutures. There was no difference in quality of life between the groups, however, the rate of complications related to the ostomy was high, mainly due to leakage and skin irritation[24].

Thus, clearly, the ostomy site significantly interferes with the incidence of complications and the suture technique should be chosen as the safest, not the most aesthetic, so that the risk of complications can be reduced.

Another very common complication after the creation of an ostomy is paraestomal hernia, an abnormal bulge of the abdominal cavity through the abdomen. In addition to the surgical technique, other factors may be associated with its appearance, such as advanced age, obesity, diabetes and increased intra-abdominal pressure. The development of paraestomal hernia can cause discomfort, such as intestinal obstruction and incarceration, requiring emergency surgery[30,31].

The use of tissue reinforcement using mesh, at the time of ostomy formation, has been suggested for the prevention of paraestomal hernia and there are different options for synthetic and biological meshes, with synthetic polypropylene mesh being more used. There are different options for its positioning in relation to the abdominal wall, with placement on the muscular fascia (onlay), below the anterior fascia and muscle levels (sublay) or intraperitoneal[32].

Similar findings between the groups that received reinforcement of a dermal matrix in a sublay position were evidenced, with those without reinforcement regarding the incidence of parestomal hernias[9]. However, other authors[13,14,20] have pointed out that the prophylactic mesh insertion in the retromuscular space protects against the formation of paraestomal hernia and that the complications related to the mesh are low. Thus, the prophylactic increase of the abdominal wall with a retromuscular polypropylene mesh at the ostomy site is a safe and viable procedure, without adverse events and negative effects on quality of life.

The prophylactic placement of the two-component mesh in the intraperitoneal position also showed being safe and reduce the risk of the appearance of paraestomal hernia. However, the authors of this study stressed that this technique cannot prevent herniation of the abdominal cavity content, which can still occur through the mesh orifice[12].

In this context, a meta-analysis carried out in 2012, which included three randomized clinical trials, pointed out a significant difference in the incidence of paraestomal hernia between the control group and people with a prophylactic mesh[33]. Still, studies related to the use of prophylactic mesh placement in patients or to specific operative factors, such as obesity or emergency surgery, are needed, which increases not only the risk of paraestomal hernia but also infection. This information would allow the identification of patients who can benefit from the insertion of a prophylactic mesh and facilitate the development of guidelines[34].

In addition to the use of meshes to prevent paraestomal hernia, we believe that the formation of the ostomy using a lateral paralectal technique generates a lower incidence of this complication. However, when investigating the use of lateral rectal versus trans-rectal technique in patients with temporary loop ileostomy and authors pointed out that the rates of paraestomal hernia, as well as the occurrence of other stoma-related morbidity, did not differ among patients[11].

Another complication that may be related to the surgical technique is the retraction of the ostomy, which most frequent causes are insufficient exteriorization or poor fixation of the intestinal loop, early removal of the support rod, among others. The retracted ostomy has a height below the level of the skin, that is, there is total or partial penetration of the intestinal loop in the abdominal cavity, which may cause leaks of fecal content, which requires the use of specific collection equipment for this condition[29].

Traditionally, the ostomy rod has been used to reduce the risk of retraction. However, there is a small or no difference in the incidence of retraction in groups with a rod, when compared to those without a rod. In addition, there was a significantly higher occurrence of complications, such as edema and necrosis of the mucosa and dermatitis around the ostomy site and it is recommended to avoid this technique[17,19]. Corroborating this information,

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

a systematic review with meta-analysis showed that the routine use of this procedure should be avoided, as it does not provide proven benefits[35].

Considering the above, it is evident that a careful assessment in the preoperative period is essential to reduce the rates of ostomy and peristomal skin complications. The conducts performed by the multidisciplinary team should aim at the rehabilitation of the person with ostomy, with actions initiated in the preoperative period such as the choice and marking of the ostomy site by the specialist nurse in order to minimize postoperative complications, such as leaks, prolapse, dermatitis periestomal and difficulties in self-care[36].

Skin barriers and collecting equipment

In the category of skin barriers and collecting equipment used for the management of peristomal skin complications, a total of four studies were included[21,23,25,27]. These studies add information about the skin barriers, its functioning, its adherence and fixation, as well as the function of protection against the action of the effluent.

It is important to note that dermatitis appears as the most common occurrence of loss of skin integrity, being defined by an irritation of the skin around the stoma that emerges as a result of skin exposure to effluent, allergy to the adhesive or plastic material of the collecting device, mechanical trauma due to adhesive removal, skin friction or immunological diseases and infections[37].

Thus, the choice of the appropriate collection equipment and the ideal cut are fundamental to avoid some complications in the peristomal skin. The use of moldable collecting equipment caused a significantly lower irritant incidence when compared to the conventional one, in addition to greater satisfaction among those who used it[21]. It is worth noting that the application of collecting equipment with specific compositions can help maintain the integrity of the skin. An example of these components is ceramide, a natural lipid that can be extracted from soybeans and sunflower seeds and that works to prevent transepidermal water loss through fusion in the stratum corneum, forming a protective layer[23]

The collection equipment with ceramide helps to reduce the costs and complications of peristomal skin, provides a level of protection against the harmful effects of removal of the collector, being significantly less harmful to the epidermis compared to the conventional one[23,27].

Cholestyramine, a bile acid sequestrant, had its use topically pointed out by authors as capable of reducing burning and pruriting around the ileostomy, generated due to skin exposure to the alkaline action of the effluent[25].

A study conducted in the United Kingdom to explore nursing care for peristomal skin found that the most common causes of skin complications were related to leakage of stools and adjustment of the collection equipment, the first being considered the most painful[38]. Thus, it is important that the collection equipment is well adjusted to the abdominal wall, to prevent leakage in the peristomal skin.

Therefore, the choice of equipment and its cut, and the choice of protective barriers for the care of peristomal skin can favor the reduction of irritations in this area. A wide variety of collecting equipment and adjuvant materials are available on the market and access by people with an ostomy to the most appropriate technology must be made possible. Thus, nurses play an important role, as they are responsible for indicating the necessary collecting equipment and adjuvants.

Nursing care

In the last category, nursing care provided for the management of complications from ostomy and peristomal skin, a total of five studies were included[15,16,18,22,26]. Care and proper education for people with an ostomy are important for them to feel confident in taking care of themselves. In addition, follow-up is essential, both for education regarding the early identification of peristomal skin complications and for its correct treatment[39].

In view of the recommendation regarding the education of the person with ostomy, studies show the implementation of educational programs, such as the improved recovery program after surgery, a multimodal perioperative approach with prolonged education about the ostomy, imply a reduction in hospital stay and a decrease in the number of complications related to ostomy and skin[15,16].

In addition, programs that include home visits before hospital admission, outpatient consultations with surgeon and stomatherapist after surgery, and home visits by the stomatherapist after discharge have revealed that, despite not having reduced the number of stoma-related complications, patients experienced better quality of life and required less home care[18].

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

Continued nursing care (hospital, home and community) has been shown by authors to be effective in minimizing the occurrence of complications, effectively improving the quality of life of these people[22,26]

However, the monitoring of people with ostomy after hospital discharge using traditional methods can be difficult, depending on the patient's physical conditions and the availability of the team. Thus, strategies such as the use of technologies, such as the simple sending of electronic text messages, have been suggested to continue the assistance, showing that it is possible to contribute improving the adaptation of the person to the new condition, with a positive impact on the various dimensions of life[40].

Thus, in order to reduce complications and improve the quality of life of these people, nursing care is healthy. People with ostomy should be carefully evaluated and followed up at the primary, secondary and tertiary levels of health care by nurses and other trained health team members, with a view to rehabilitation, well-being and better quality of life. And the strategies prove to be effective and must be implemented.

CONCLUSIONS

It is essential that the person with ostomy receive care from a multiprofessional team committed to technical and scientific improvement, endowed with skills, knowledge and competences to prevent or detect early complications.

Guidance and monitoring strategies for these people, as well as technical actions such as the demarcation of the ostomy by a specialist or trained nurse, the appropriate surgical technique, the provision of adequate collection equipment and the use of quality adjuvants, in addition to the planning of interventions in line with the uniqueness of the person with ostomy will contribute significantly to reducing the complications of ostomy and peristomal skin.

A limitation of the study is the option for adopting the analysis only for studies with experimental design. However, this review consists of well-designed studies and with a strong level of evidence, and, through the analysis, it is expected to improve the nurses' knowledge by providing theoretical-practical subsidies related to complications of intestinal ostomy and peristomal skin, in order to incorporate evidence-based clinical practice in reducing complications and improving the quality of life of these people, thus ensuring the excellence of care provided.

REFERENCES

1. Pittman J, Bakas T, Ellett M, Sloan R, Rawl SM. Psychometric evaluation of the ostomy complication severity index. J wound ostomy continence nurs. 2014. [cited 2019 Aug 01]; 41(2):1-11. DOI: http://dx.doi.org/10.1097/WON.0000000000000008.
2. Ratliff CR. Factors related to ostomy leakage in the community setting. J wound ostomy continence nurs. 2014. [cited 2019 Aug 01]; 41(3):249–53. DOI: http://dx.doi.org/10.1097/WON.0000000000000017.
3. Neil N, Inglese G, Manson, A, Townshend, A. A cost-utility model of care for peristomal skin complications. J wound ostomy continence nurs. 2016 [cited 2019 Aug 10];43(1): 62. DOI: http://dx.doi.org/10.1097/WON.0000000000000194.
4. Nichols TR, Inglese GW. The burden of peristomal skin complications on an ostomy population as assessed by Health Utility and the Physical Component Summary of the SF-36v2. Value Health. 2018. [cited 2019 Aug 01]; 21(1):89-94. DOI: https://doi.org/10.1016/j.jval.2017.07.004.
5. Vonk-Klaassen SM, Vocht HM, Ouden ME, Eddes EH, Schuurmans MJ. Ostomy-related problems and their impact on quality of life of colorectal cancer ostomates: a systematic review. Qual. life res. 2015. [cited 2019 Aug 01]; 25:125-33. DOI: http://dx.doi.org/10.1007/s11136-015-1050-3.
6. Pinto IES, Queirós SMM, Queirós CDR, Silva CRR, Santos, CSVB, Brito MAC. Risk factors associated with the development of elimination stoma and peristomal skin complications. Rev. Enf. Ref. 2017. [cited 2019 Aug 01]; 4(15):155-65. DOI: https://doi.org/10.12707/RIV17071.
7. Melnyk BM, Fineout-Overholt E. Evidence-based practice in nursing & healthcare: a guide to best practice. 4.ed. Philadelphia: Wolters Kluwer Health, 2019.
8. Mendes KDS, Silveira RCDCP. Galvão CM. Integrative literature review: a research method to incorporate evidence in health care and nursing. Texto & contexto enferm. 2008. [cited 2019 Aug 01]; 17(4):758-64. Available from: https://www.redalyc.org/articulo.oa?id=71411240017.
9. Fleshman JW, Beck DE, Hyman N, Wexner SD, Bauer J, George V, Group PS. A prospective, multicenter, randomized, controlled study of non-cross-linked porcine acellular dermal matrix fascial sublay for parastomal reinforcement in patients undergoing surgery for permanent abdominal wall ostomies. Dis. colon rectum. 2014. [cited 2019 Aug 01]; 57: 623–31. DOI: https://doi.org/10.1097/DCR.0000000000000106.
10. Thoker M, Wani I, Parray FQ, Khan N, Mir SA, Thoker P. Role of diversion ileostomy in low rectal cancer: A randomized controlled trial. Int. j. surg. 2014. [cited 2019 Aug 01]; 12:945–51. DOI: https://doi.org/10.1016/j.ijsu.2014.07.012.

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

11. Hardt J, Seyfried S, Weiß C, Post S, Kienle P, Herrle F. A pilot single-centre randomized trial assessing the safety and efficacy of lateral pararectus abdominis compared with transrectus abdominis muscle stoma placement in patients with temporary loop ileostomies: the PATRASTOM trial. Colorectal dis. 2015. [cited 2019 Jun 01];18(2):81-90. DOI: https://doi.org/10.1111/codi.13251.
12. Vierimaa M, Klintrup K, Biancari F, Victorzon M, Carpelan-Holmstrom M, Kossi J, et al. Prospective, randomized study on the use of a prosthetic mesh for prevention of parastomal hernia of permanent colostomy. Dis colon rectum. 2015. [cited 2019 Aug 01]; 58:943-9. DOI: http://dx.doi.org/10.1097/DCR.0000000000000443.
13. Lambrecht JR, Larsen SG, Reiertsen O, Vaktskjold A, Julsrud L, Flatmark K. Prophylactic mesh at end-colostomy construction reduces parastomal hernia rate: a randomized trial. Colorectal dis. 2015. [cited 2019 Jun 01]; 17(10): O191-97. DOI: https://doi.org/10.1111/codi.13065.
14. Brandsma HT, Hansson BME, Aufenacker TJ, Van Geldere D, Van Lammeren FM, Mahabier C, et al. Prophylactic mesh placement to prevent parastomal hernia, early results of a prospective multicentre randomized trial. Hernia. 2016.[cited 2019 Jun 01]; 20(4):535-41 Available from: https://link.springer.com/article/10.1007/s10029-015-1427-9.
15. Alenezi AN, Mansour EA. Impact of stoma care education in minimizing the incidence of stoma skin complications. Bahrain med. bull. 2016.[cited 2019 Jun 01]; 38(3):151-53. Available from: http://www.bahrainmedicalbulletin.com/september_2016/Impact.pdf.
16. Forsmo HM, Pfeffer F, Rasdal A, Sintonen H, Körner H, Erichsen C. Pre and postoperative stoma education and guidance within an enhanced recovery after surgery (ERAS) programme reduces length of hospital stay in colorectal surgery. Int. j. surg. 2016. [cited 2019 Jun 01]; 36 (A): 121-26. DOI: https://doi.org/10.1016/j.ijsu.2016.10.031.
17. Franklyn J, Varghese G, Mittal R, Rebekah G, Jesudason MR, Perakath B. A prospective randomized controlled trial comparing early postoperative complications in patients undergoing loop colostomy with and without a stoma rod. Colorectal dis. 2017. [cited 2019 Jun 01];19(7): 675-80. DOI: https://doi.org/10.1111/codi.13600.
18. Sier MF, Oostenbroek RJ, Dijkgraaf MGW, Veldink, GJ, Bemelman WA, Pronk A, et al. Home visits as part of a new care pathway (iAID) to improve quality of care and quality of life in ostomy patients: a cluster-randomized stepped-wedge trial. Colorectal dis. 2017. [cited 2019 Jun 01];19(8): 739-49. DOI: https://doi.org/10.1111/codi.13630.
19. Uchino M, Ikeuchi H, Bando T, Chohno T, Sasaki H, Horio Y. Is an ostomy rod useful for bridging the retraction during the creation of a loop ileostomy? A randomized control trial. World j. surg. 2017. [cited 2019 Jun 01]; 41(8):2128-35. Available from: https://link.springer.com/article/10.1007/s00268-017-3978-7.
20. Brandsma HT, Hansson BM, Aufenacker TJ, Van Geldere D, Lammeren F, Mahabier, C, et al. Prophylactic mesh placement during formation of an end-colostomy reduces the rate of parastomal hernia. Ann. sur. 2017. [cited 2019 Jun 01]; 265(4): 663-9. DOI: https://doi.org/10.1097/SLA.0000000000001903.
21. Liu G, Chen Y, Luo J, Liu A, Tang, X. The application of a moldable skin barrier in the self-care of elderly ostomy patients. Gastroenterol. nurs. 2017.[cited 2019 Jun 01]; 40(2):117-20. DOI: https://doi.org/10.1097/SGA.0000000000000143.
22. Harputlu D, Ozsoy AS. A prospective, experimental study to assess the effectiveness of home care nursing on the healing of peristomal skin complications and quality of life. Ostomy wound Manage. 2018.[cited 2019 Jun 01];64(10), 18-30. DOI: https://doi.org/10.25270/owm.2018.10.1830.
23. Colwell JC, Pittman J, Raizman R, Salvadalena G. A randomized controlled trial determining variances in ostomy skin conditions and the economic impact (ADVOCATE Trial). J wound ostomy continence nurs. 2018. [cited 2019 Jun 01]; 45(1): 37. DOI: https://doi.org/10.1097/WON.0000000000000389.
24. Sier MF, Wisselink DD, Ubbink DT, Oostenbroek RJ, Veldink GJ, Lamme B, et al. Randomized clinical trial of intracutaneously versus transcutaneously sutured ileostomy to prevent stoma-related complications (ISI trial). Br. j. surg. 2018. [cited 2019 Jun 01]; 105(6): 637-44. DOI: https://doi.org/10.1002/bjs.10750.
25. Ala S, Alvandipour M, Saeedi M, Seyedein S, Monajati M, Koulaeinejad N. Evaluation of cholestyramine 15% ointment in relieving pruritus and burning after ileostomy: a rrandomized, double-blind placebo-controlled clinical trial. J. invest. surg. 2019. [cited 2019 Jun 01]; 20:1-8. DOI: https://doi.org/10.1080/08941939.2019.1578442.
26. Liu H, Gu J, Gu J, Dai G, Hu Y. Exploration of the effect of continuous nursing mode on the health of patients with permanent enterostomy. Acta med. mediterr. 2019. [cited 2019 Jun 01]; 35:579. DOI: https://doi.org/10.19193/0393-6384_2019_1s_88.
27. Grove G, Houser T, Sibbald G, Salvadalena, G. Measuring epidermal effects of ostomy skin barriers. Skin res. technol. 2019. [cited 2019 Jun 01]; 25(2):179-86. DOI: https://doi.org/10.1111/srt.12630.
28. Redmond C, Cowin C, Parker T. The experience of faecal leakage among ileostomists. Br. j. nurs. 2009. [cited 2019 Jun 01]; 18(6):S12-17. DOI: https://doi.org/10.12968/bjon.2009.18.Sup6.44170.
29. Borges EL, Ribeiro MS. Linha de cuidados da pessoa estomizada. Secretaria de Estado de Saúde de Minas Gerais. Belo Horizonte: SES-MG, 2015.
30. Śmietański M, Szczepkowski M, Alexandre JA, Berger D, Bury K, Conze J, et al. European hernia society classification of parastomal hernias. Hernia. 2014. [cited 2019 Set 01]; 18(1):1-6. Available from: https://link.springer.com/article/10.1007/s10029-013-1162-z.
31. Stabilini C, Gianetta E. Parastomal hernia prevention and treatment. In the art of hernia surgery. Springer, cham; 2018. P. 659-667.
32. Gillern S, Bleier JI. Parastomal hernia repair and reinforcement: the role of biologic and synthetic materials. Clin colon rect. sur. 2014. [cited 2019 Aug 01]; 27(04):162-71. DOI: https://doi.org/10.1055/s-0034-1394090.

DOI: http://dx.doi.org/10.12957/reuerj.2019.45758

33. Shabbir J, Chaudhary BN, Dawson R. A systematic review on the use of prophylactic mesh during primary stoma formation to prevent parastomal hernia formation. Colorectal dis. 2012. [cited 2019 Aug 01]; 14(8):931-36. DOI: https://doi.org/10.1111/j.1463-1318.2011.02835.x.
34. Aquina CT, Iannuzzi JC, Probst CP, Kelly KN, Noyes K, Fleming FJ, Monson JR. Parastomal hernia: a growing problem with new solutions. Dig. surg. 2014. [cited 2019 Aug 01]; 31(4-5): 366-76. DOI: https://doi.org/10.1159/000369279.
35. Mohan HM, Pasquali A, O´Neill B, Collins D, Winter DC. Stoma rods in abdominal surgery: a systematic review and metaanalyses. Tech. coloproctol. 2019. [cited 2019 Aug 01]; 23(3):201-06. Available from: https://link.springer.com/article/10.1007/s10151-019-01935-w.
36. Salvadalena G, Hendren S, McKenna L, Muldoon R, Netsch D, Paquette I, et al. WOCN Society and AUA position statement on preoperative stoma site marking for patients undergoing urostomy surgery. J wound ostomy continence nurs. 2015. [cited 2019 Aug 01]; 42(3):253-56. DOI: https://doi.org/10.1097/WON.0000000000000118.
37. Tieleman C, Probert, R., Forest-Lalande L, Hansen AS, Aggerholm S, Ajslev TA. Evaluation of a new ostomy mouldable seal: an international product evaluation. Br. j. nurs. 2016. [cited 2019 Aug 01]; 25(22): S16-22. DOI: https://doi.org/10.12968/bjon.2016.25.22.S16.
38. Burch, J. Current nursing practice by hospital-based stoma specialist nurses. Br. j. nurs. 2014. [cited 2019 Aug 01]; 23(Sup5): S31-34. DOI: https://doi.org/10.12968/bjon.2014.23.Sup5.S31.
39. Steinhagen E, Colwell J, Cannon LM. Intestinal stomas—postoperative stoma care and peristomal skin complications. Clin colon rect. sur. 2017. [cited 2019 Aug 01];30(03):184-92. DOI: https://doi.org/10.1055/s-0037-1598159.
40. Hamidi Y, Moeini, M, Yousefi H. The effect of an interactive follow-up program on ostomy adjustment of inpatients after their discharge from surgical wards of the hospitals affiliated to Isfahan University of Medical Sciences. Int. j. colorectal. dis. 2018. [cited 2019 Aug 01]; 33(9):1295-97. Available from: https://link.springer.com/article/10.1007/s00384-018-3041-7.