

Kucharczuk Magda, Sikorska Hanna, Juraszek Karolina, Tkaczyński Karol. Early hospital rehabilitation in patients with a performed intestinal stoma. *Journal of Education, Health and Sport*. 2019;9(8):603-610. eISSN 2391-8306. DOI <http://dx.doi.org/10.5281/zenodo.3383219>
<http://ojs.ukw.edu.pl/index.php/johs/article/view/7358>

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.
The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 1223 (26/01/2017).
1223 Journal of Education, Health and Sport eISSN 2391-8306 7

© The Authors 2019;

This article is published with open access at Licensee Open Journal Systems of Kazimierz Wielki University in Bydgoszcz, Poland
Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author (s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non commercial license Share alike.
(<http://creativecommons.org/licenses/by-nc-sa/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 05.08.2019. Revised: 15.08.2019. Accepted: 01.09.2019.

Early hospital rehabilitation in patients with a performed intestinal stoma

Wczesna rehabilitacja szpitalna u osób z wyłonioną stomią jelitową

Magda Kucharczuk^{1,2}, Hanna Sikorska², Karolina Juraszek^{1,3}, Karol Tkaczyński⁴

¹ Department of Physiotherapy, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Poland

² Surgery Unit, 10th Military Research Hospital and Polyclinic, Bydgoszcz, Poland

³ Eskulap Hospital in Osielsko, Rehabilitation Center, Poland

⁴ Department of Surgical Oncology, Oncology Centre, Bydgoszcz, Poland

Address to correspondence:

mgr Magda Kucharczuk

magdakucharczuk1@wp.pl

Abstract

An intestinal stoma is an intentional connection between the light of the small intestine (ileostomy) or the large intestine (colostomy) and the skin surface. The aim of the study was to present the topic of early hospital rehabilitation in patients who had to have a selected stoma as a result of the procedure. Rehabilitation is a supplement to surgical treatment and conditions good functioning of the patient after surgery. The main components of the therapy are: respiratory exercises, exercises of expectoration and effective coughing, wound stabilization, learning to change position from lying to sitting, anticoagulation exercises, general development exercises, verticalisation. More and more often, the rehabilitation is

complemented by the use of kinesiology taping. Properly conducted physiotherapy may bring measurable benefits to the patient in the form of functional improvement and return to efficiency before surgery, or reduction of the degree of disability. The patient improvement plan is subject to constant modification by the therapist and is adapted to the physical and mental abilities of the patient on a given day. An important element in the healing process of patients with a performed stoma is the interdisciplinary care provided by all members of the therapeutic team: a doctor, a nurse, a physiotherapist, a psychologist, a nutritionist.

Key words: physiotherapy, rehabilitation, stoma, surgery

Admission

A stoma is a deliberate combination of the cavernous organ lumen and the skin surface, performed of planned or urgent indications. It is produced to introduce nutrients into the gastrointestinal tract lumen (e.g. gastrostomy or nutritional gastric fistula) or to act as an excretory agent, as in the case of an intestinal stoma or urinary stoma. Because of the stoma's durability, we can distinguish between a time stoma, where there is the possibility of surgical restoration of previously lost continuity and a definitive stoma - without the possibility of restoring the continuity of the gastrointestinal tract [1,2].

In Poland, about 7000 intestinal stomas are performed annually, in 80% of cases due to intestinal cancer. Other causes include: pathologies of the small intestine (obstruction, perforation, ischemia), diverticular disease of the large intestine, inflammatory bowel disease, gastrointestinal bleeding, anal fistulas and traumas. It is estimated that about 35 thousand people with a stoma live in Poland [3]. The anatomical location of the intestinal stoma can be distinguished:

- colostomy - this is a combination of colorectal lumen and skin,
- ileostomy - is a combination of the small intestine lumen and the skin [1].

Creating an intestinal stoma is always part of a complex therapy. In addition to its basic function, the stoma should also provide the patient with a good quality of life. The correct placement, creating and formation of the stoma is essential for the patient's further handling and care. Despite the significant progress in both the surgical technique and access to modern equipment, stoma emergence is associated with a high percentage of complications. Complications after colostomy are estimated to occur in about 30-40% of patients, after ileostomy - in about 16% [3,4]. The most common complications include stenosis (sometimes leading to complete clogging), bleeding, prolapse, parastomal hernia and skin lesions around the stoma [4]. Before each procedure in the intestines, the patient should be informed about the possibility of a stoma. On the eve of the planned surgery, the place of formation of the intestinal stoma is marked with ink. Each time, its position is checked and adjusted depending on the patient's position (sitting, lying, standing) in order to achieve a compromise between the patient's acceptance and the technical possibilities of the operation itself. The stoma hole should pass through the straight abdomen muscle and be as far away from the cut line as possible and from any scars or deformities of the skin [4,5]. Operations completed with the creation of a stoma require professional and comprehensive care based on the identified functional problems.

The aim of a study

The aim of this study was to present forms of early hospital rehabilitation in patients who had to have an intestinal stoma as a result of the procedure.

Material and methods

The study was conducted using the method of literature analysis. The available publications in the following bibliographical databases were reviewed: PubMed, Google Scholar, Polish

Medical Library and Medline using a combination of individual keywords: stoma, rehabilitation, physiotherapy, surgery.

Rehabilitation

Rehabilitation is a supplement to surgical treatment and conditions good functioning of the patient after surgery conducted with creating intestinal stoma. The therapy should be individually adjusted to the patient's condition and abilities on a current day. We can distinguish between pre- and post-operative rehabilitation. prepare the patient psychically and physically for the planned procedure is the aim of preoperative rehabilitation. The main tasks of physiotherapy in the postoperative period are: prevention of pulmonary complications, anticoagulant proceeding and general efficiency recovery. Postoperative rehabilitation should be introduced from the first day after the procedure, and then gradually expanded. Both in the preoperative and postoperative period, physiotherapy includes:

1. Respiratory exercises

The main purpose of respiratory exercises conducted in patients with a performed intestinal stoma is to prevent complications from the respiratory system, maintain or restore proper functioning of the respiratory system and learn how to breathe properly and the respiratory tract. There are a few rules about the correct technique for doing respiratory exercises:

- Inhaling is always through the nose and exhaling through the nose or mouth,
- In respiratory exercises, the choice of starting position is important,
- Respiratory phases can be impeded or facilitated by torso or limb co-movements,
- Exercise begins with deep exhalation,
- The number of repetitions of each exercise is about 5,
- Inspiration to expiration ratio 1:2, 1:3,
- Exercises should be conducted every 2 hours.

The preferred respiratory pathway for stoma patients in the early days after surgery is the thoracic tract, where the chest expands when inhaled. The choice of this breathing path results from the necessity of less strain on the abdominal muscles after the procedure. In further respiratory rehabilitation of the patient, the physiotherapist tries to teach the patient how to breathe through the diaphragmatic tract, in which the abdominal shells are widened at the moment of inhalation. The choice of this track is dictated by its increased efficiency in relation to the thoracic track and ensures the use of 70% of the patient's respiratory capacity [6,7]. Depending on the chosen breathing path, the patient should place his or her hand on the abdomen or chest and control its lifting at inspiration and lowering at exhalation. In order to encourage the patient to conduct breathing exercises, it is advisable to use ready-made devices manufactured for this purpose. In case of lack of them, the items available in the ward can be used, e.g. a drain can be immersed in a glass of water or a glove can be tied at its end.

2. Exercises of expectoration and effective coughing

After surgery, the patient, due to the accompanying pain and fear, tends to take shallow breaths and expirations. This type of breathing can cause mucus deposits in the bronchial tree, which leads to a decrease in the efficiency of gas exchange in the alveoli. These changes can be prevented by using breathing exercises and expectoration and effective coughing exercises. It is best to start learning effective coughing before surgery. When the patient is not accompanied by pain and anxiety about wound dehiscence after surgery, he or she is willing to perform exercises that will be useful after the surgery. The method of therapy is as follows: a short, deep breath through a nose always precedes a long exhale through a mouth, at the top of which the patient performs a series of several strong coughs. Effective coughing should be performed in positions that bring muscle trailers close to the place of operation: sitting or semi-sitting position with bent lower limbs in knee and hip joints [6,7,8].



Photo 1. Exercises of expectoration and effective coughing

Source: Own archive

3. Learning how to stabilize a wound after surgery

Learning of effective coughing should go hand in hand with learning how to stabilize the wound after surgery. The aim of wound stabilization is to protect the wound against its possible dehiscence, e.g. when coughing, sneezing or changing position. Additionally, it reduces the patient's pain by reducing the possibility of unintentional pulling of the wound. Stabilisation can be done with one hand or both hands by holding the dressing underneath the wound (closing the wound edges). To increase the surface pressure and reduce the possibility of injury, stabilization can be performed by a pillow or duvet [9,10,11]. Traditional stabilization of the postoperative wound is complemented by the use of kinesiotaping on the dressing. They are an alternative to commonly used abdominal belts, which, if used continuously for a long period of time, may cause secondary abdominal muscle strength reduction.



Photo 2. Learning how to stabilize a wound after surgery.

Source: Own archive

4. Kinesiotaping

Kinesiotaping is a physiotherapy method developed by Japanese doctor Kenzo Kase. It is based on the use of special plasters applied directly on the skin. These are adhesive cotton tapes with parameters similar to those of human skin. We distinguish the following applications: muscular, fascial, ligamentous, functional, lymphatic. The proper way of applying the stretch patch causes minimal skin lift, at the same time increasing the space between the dermis and the fascia, which leads to increased blood and lymph flow. As a result, muscle and fascial tension normalizes, blood and lymph flow is activated, pain is reduced and motorism is improved [12,13,14,15].



Photo 3. Kinesiotaping
Source: Own archive

5. Learning to change from lying to sitting position

A very important role of physiotherapist is to teach the patient to change his position from lying down to sit with his lower limbs lowered outside the bed. The procedure is performed from the patient's side position. Then the patient leaves his lower limbs behind the bed and supports himself on his hands at the same time. Additionally, the patient can stabilize the postoperative wound with one hand. The choice of such a way of changing the position is dictated by less tension in the abdominal muscles than in the case of moving directly to the sitting position through the forward bend. This is important from the point of view of proper healing of the postoperative wound and is a protection against the possible dehiscence of the wound [6,7,8,9].





Photo 4. Learning to change from lying to sitting position

Source: Own archive

6. Antithrombotic exercises

The main purpose of lower limbs antithrombotic exercises is to reduce the occurrence of thrombosis after surgery and prevent venous stasis. Antithrombotic rehabilitation includes mainly active movements within the feet, i.e.: dorsal and sole bending, as well as supination and pronation movement in the ankle joint. For the exercises to be effective, their regularity is important. The above movements should be performed every 1.5-2 hours, at a rate of about 15 repetitions per minute for 10-15 minutes [6,7].



Photo 5. Antithrombotic exercises

Source: Own archive

7. General development exercises

The improving exercises should be adapted to the patient's general condition. Consideration should be given to the burden of extensive surgery and co-morbidities. Performing diligent exercises prevents decubitus, bone decalcification, fatigue, urinary tract or respiratory infections, which are often the result of immobilization of patients. Exercises in the early postoperative period should concern upper and lower limbs, but should not directly involve the abdominal muscles, due to the possibility of dehiscence of the postoperative wound. As a result of movements within the limbs, thanks to synergisms, we obtain slight tension of abdominal muscles, which is essential for improving intestinal peristalsis and blood circulation in the operated area [9,10,11].

8. Verticalisation

Early verticalisation and activation of the patient play a very important role in the prevention of postoperative complications. Currently, the aim is to shorten the time during which the patient is lying in bed as much as possible and the patient verticalisation is in 1-2 days after surgery, after consultation with the doctor. The patient may walk under physiotherapist's care at a distance depending on his current abilities. An important element of comprehensive

improving of patient is proper equipping the patient with orthopaedic equipment or orthopaedic aids, if the patient's condition requires such a supply. Verticulation and gait learning in the first days after the procedure can be facilitate with the help of auxiliary equipment in the form of a walking frame. As the patient's condition improves, it is recommended to extend the therapy [9].

In the early postoperative period of intestinal stoma surgery, problems with leakage of stoma bags and uncontrolled stool and gas donation can be the reason lack of patient cooperation. Rehabilitation requires caution and patience on the part of the physiotherapist. It is important that the patient and the physiotherapist form a harmonious, complementary team and work together to achieve their goals [5,6,7].

After the operation, the patient should avoid overloading the abdominal muscles for about 6 months. It is not advisable to carry out heavy physical work or heavy lifting during this period. In the case of large surgical cuts, the occurrence of obesity causing constant tension in the abdominal muscles may be helpful to use the abdominal, stoma belt. However, make sure that the belt is used periodically for as short a period as possible. Continuous use of the belt can lead to significant weakening of the abdominal muscles, which can lead to complications such as hernias in the postoperative wound. In addition, patients should not engage in contact sports as there is a risk of abdominal injury. However, it is advisable to have a person-specific physical activity.

Later, when the patient will be at home and the postoperative wound will heal completely, it is worth considering the introduction of a comprehensive scar therapy. Sometimes scars can cause discomfort and mobility problems in patients. Comprehensive scar therapy makes it more flexible, increases mobility and prevents the formation of adhesions in tissues. The therapy includes manual therapy, kinesiotaping, physical therapy and lymphatic drainage [16].

Summary

Currently, the model of shortened hospitalization in hospitals is being implemented in comparison to previous years. This also applies to surgical patients, including those with an intestinal stoma. If the patient does not experience any complications after the surgery, he is discharged on the 7th or 8th day after the surgery. It is important that the patient achieves the highest possible degree of independence. This means both everyday life and the ability to take care of your stoma. While the patient is still in hospital, the patient and the family are instructed by a trained stoma nurse. In the healing process, it is important to understand the recommendations and learn how to care for your stoma properly.

Patients leaving the hospital should be educated about the continuation of exercises and recommendations concerning the protection of the surgical wound. An important element in the process of recovery of patients with a performed stoma is their interdisciplinary care provided by all members of the therapeutic team: a doctor, a nurse, a physiotherapist, a psychologist, a dietician [17]. Properly conducted rehabilitation may bring measurable benefits to the patient in the form of functional improvement and return to efficiency before surgery, or reduction of the degree of disability. Comprehensive rehabilitation should be carried out continuously, in hospital, ambulatory or home conditions, and if necessary, supplemented with orthopaedic supplies. The patient improving plan is subject to constant modification by the therapist and is adapted to the physical and mental abilities of the patient on a given day. There are no rigid, defined rules of conducting rehabilitation classes and each case should be considered individually.

References

1. Banasiewicz T., Krokowicz P., Szczepkowski M. (red.) Stomia prawidłowe postępowanie chirurgiczne i pielęgnacja. Termedia Poznań 2014 str. 25-26, 131-133
2. Bączyk G., Głowacka A., Kozłowska K., Niewiadomska E. Ocena stopnia samodzielności chorych z przetoką jelitową. Pielęgniarstwo Polskie 2016;3(61): 360-366

3. B. Falkenberg, H. Lippert. Stomie końcowe. *Der Chirurg* 1999; 70: 643-649
komentarz: prof. dr hab. med. Krzysztof Bielecki *Medycyna Praktyczna* 2012: 11
4. Szmidt J., Kuźdżała J. *Podstawy Chirurgii tom 2. Medycyna Praktyczna* Kraków 2010, 804-805
5. Gastecka A., Tarkowska M., Szeliski K., Głowacka-Mrotek, Buhl M., Nowikiewicz T., Zegarski W., Drewna T. Jakość życia uwarunkowana stanem zdrowia u pacjentów z wyłonioną stomią w wyniku leczenia wybranych chorób nowotworowych. *Polski Przegląd Nauk o Zdrowiu* 2018;3(56): 287-293
6. Woźniewski M., Kołodziej J. *Rehabilitacja w chirurgii. Wydawnictwo Lekarskie PZWL* Warszawa 2006
7. Woźniewski M. (red.) *Fizjoterapia w chirurgii. Wydawnictwo Lekarskie PZWL* Warszawa 2012
8. Mackiewicz-Milewska M., Mackiewicz Z., Hagner W. Problemy rehabilitacyjne chorych z dużymi przepuklinami brzuszными. *Chirurgia Polska* 2007;9(4): 231–236
9. Trojan G., Jaźwa P., Kułtys J. Rola i miejsce fizjoterapii w leczeniu pacjentów chirurgicznych. *Przegląd Medyczny Uniwersytetu rzeszowskiego* 2005;1: 71-76
10. Ławnik A. Rehabilitacja pacjentów ze stomią jelitową. *Med Og Nauk Zdr.* 2015;21(1): 84–87
11. Woźniewski M. (red.) *Fizjoterapia w onkologii* Wydawnictwo Lekarskie PZWL Warszawa 2012 str. 1-18
12. Szczegielniak J., Krajczy M., Bogacz K., Łuniewski J. Kinesiotaping w fizjoterapii po zabiegach chirurgicznych w obrębie jamy brzusznej. *Fizjoterapia Polska* 2007;3(4): 299-307
13. Mosiejczuk H., Lubińska A., Ptak M., Szylińska A. Kinesiotaping jako interdyscyplinarna metoda terapeutyczna. *Pomeranian J Life Sci* 2016;62(1): 60-66
14. Tantawy S., Kamel D. Effect of kinesio taping on pain post laporoscopic abdominal surgery: randomized controlled trial. *International Journal of Therapies and Rehabilitation Research* 2015;4(5): 250-255
15. Krajczy M., Krajczy E., Szczegielniak A. Plastrowanie dynamiczne po zabiegach chirurgicznych na jamie brzusznej. *Vademecum Fizjoterapeuty* 2015;3: 8-14
16. Chochowska M., Marcinkowski J., Klimberg A. Terapia manualna w pracy z bliźną po operacji cięcia cesarskiego. *Hygeia Public Health* 2017;52(2): 151-156
17. Lewandowska I., Kowalik J., Kopański Z., Skura-Madziąła A., Furmaniak F. Opieka nad pacjentem ze stomią jelitową. *Journal of Public Health, Nursing and Medical Rescue* 2011;2: 9-10