Положительная динамика PASI также подтвердила эффективность комплексной терапии.

Необходимо отметить, что только два пациента обратились повторно со свежими проявлениями псориаза через три месяца после окончания терапии, что можно объяснить сопутствующей патологией (гепатит С и дислипидемия). У остальных пациентов не зафиксировано обострения псориаза в течение шести месяцев по завершении лечения. Кроме того, за период наблюдения у всех пациентов не зарегистрировано нежелательных явлений на фоне приема Глютамакса, в том числе повышения артериального давления и отеков. Повторный анализ крови на 14-й день лечения - показал снижение биохимических показателей крови, спустя 3 мес. - у всех пациентов с повышенным содержанием АлТ, АсТ, ЩФ, общего билирубина наблюдались значения, в среднем превышающие норму не более чем на 10%. У пациентов снизился уровень холестерина в крови, что могло быть связано с нормализацией функций печени.

Выводы. Таким образом, Глютамакс, включенный в комплексную терапию псориаза, продемонстрировал хорошую эффективность в отношении кожных проявлений псориаза (увеличение межрецидивного периода, улучшение динамики биохимических маркеров патологии печени), высокий уровень безопасности и удобный прием для закрепления положительной динамики на амбулаторном этапе после выписки из стационара.

ЛИТЕРАТУРА

1. Катунина О.Р. Иммунная система кожи и ее роль в лечении псориаза. Вестн дерматол и венерол 2005; 1: 19—23.

2. Кунгуров Н.В., Филимонкова Н.Н., Тузанкина И.А. Псориатическая болезнь. Екатеринбург: Изд. Уральского университета 2002.

3. Кубанова А.А., Кубанов А.А., Николас Дж. Ф. и др. Иммунные механизмы псориаза. Новые стратегии биологической терапии. Вестн дерматол и венерол 2010; 1: 35—47.

4. Кубанова А.А. Клинические рекомендации. Дерматовенерология. М 2007.

5. Krueger J.G., Bowcock A. Psoriasis pathophysiology: current concepts of pathogenesis. Ann Rheum Dis 2005; 64: 30—36.

6. Сторожаков Г.И., Байкова И.Е. Глицирризин в лечении хронических вирусных гепатитов. Клин фармакол и тер 2000; 9: 39—41.

7. Menter A., Griffiths C.E. Current and future management of psoriasis. Lancet 2007; 370: 272—284.

8. Nickoloff B.J., Nestle F.O. Recent insights into the immunopathogenesis of psoriasis provide new therapeutic opportunities. J Clin Invest 2004; 15: 1664—1675.

9. Филимонкова Н.Н. Псориатическая болезнь: клинико-иммунологические варианты, патогенетическое обоснование дифференцированной терапии: Автореф. дис. … д-ра мед. наук. Челябинск 2001.

ADHESIVE ILEUS – PREVENTION METHODS. OUTCOMES AND IMPORTANCE OF PREVENTION.

Dekova Irina Angelova
M.D., As. Prof. at the Department of Surgical Diseases, MU Pleven, Surgeon at Abdominal and Visceral Surgery Department at UMHAT " Georgi Stranski" Pleven.
ORCID: 0000-0003-1400-2480
Racheva Valeriya
M.D., As. Prof. at the Department of Clinical Laboratory, MU Pleven, Clinical laboratory scientist at UMHAT "St. Marina" Pleven.
ORCID: 0000-0001-7777-7713
Tranchev Lazar Valeriev
Medical Student at Medical University – Pleven.
ORCID: 0000-0002-8703-0514
DOI: 10.31618/ESU.2413-9335.2022.4.101.1736

ABSTRACT

Adhesive ileus is a common disease. A prerequisite for its development is previous surgical intervention in 90% and the presence of an experienced inflammatory process or blunt trauma. The percentage of congenital abdominal adhesions (Ladd's syndrome) is extremely small. The presence of adhesive disease is a prerequisite for a number of social and economic complications. The analysis of the accumulated knowledge is the basis of developing strategies for prophylaxis and prevention against adhesion formation in the early and late postoperative period.

Keywords: adhesive ileus, adhesion, postoperative complications, prevention of adhesion formation, prevention of adhesion formation.

Introduction

Adhesive ileus is a disease resulting from connective tissue adhesions in the abdominal cavity. It is most often observed in patients after surgical interventions (97%) or in those after inflammatory processes or trauma in the abdominal cavity. The

consequences of adhesive ileus can vary in severity among patients and can result in partial or total disability. They are extremely unpleasant for both the affected individuals and the attending physicians and surgical teams due to the high rate of complications. Frequent rehospitalizations and the high rate of disability of the population are an exceptional economic burden for the health systems of the countries. This is why the topic of adhesion prevention is important to discuss.

Based on the good knowledge of the mechanism of adhesion formation, i.e. of the pathogenesis, a classification was created for the prevention of adhesion formation.

1. Reduction of peritoneal damage by- practicing laparoscopic surgery; compliance with good surgical technique; using 32% dextran 70% providone for lavage

2. Prevention against formation of fibrin-use of anticoagulants; heparin; citrate; adenosine.

3. Suppression of the inflammatory response / reduction of vascular permeability, histamine release, stabilization of lysosomes - Use of: corticosteroids; NSAIDs; pentophylline; calcium channel blockers; vitamin E; colchicine; antihistamines; progerterone.

4. Fibrinolytic agents / fibrinolysis, stimulation of plasminogen activators/--streptokinase; urokinase; recombinant tPA; fibrinolysin; hyaluronidase; trypsin; pepsin.

5. Prevention in the organization of fibrin-halofuginone.

6. Antibiotics / aimed at prevention of infection / - broad-spectrum.

7. Mechanical separation -Use of intra-abdominal solutions and use of anti-adhesive barriers:

In our daily practice, the most frequently used methods are:

1. Prophylactic surgical measures against the formation of adhesions

2. Use of anti-adhesive barriers

Target

The aim of the present study is to study the patients in whom we have used different methods for the prevention of adhesion formation and to analyze the results obtained.

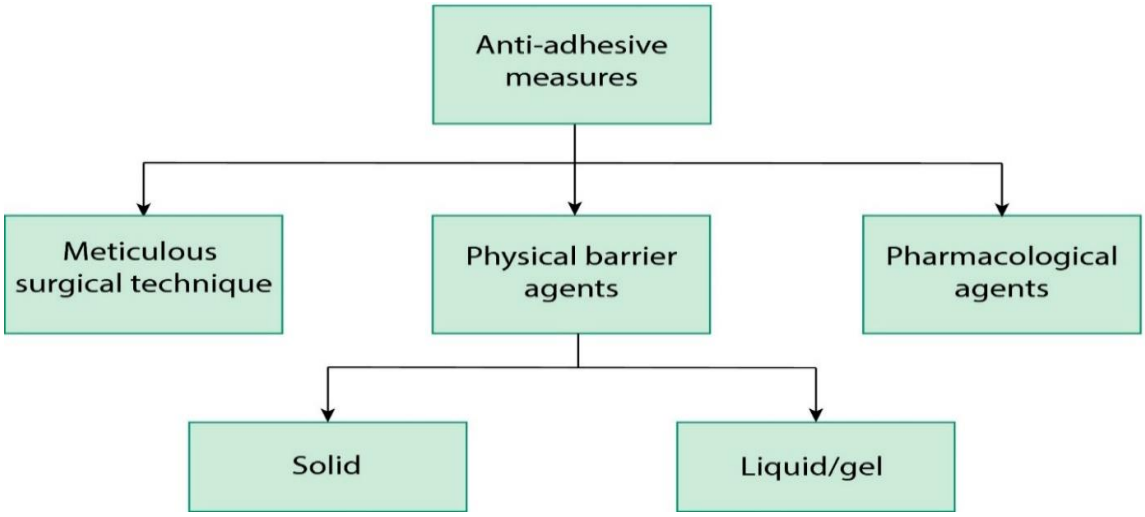
Materials and methods

The present study was conducted on material covering 180 operations performed on 167 patients treated in the First Surgical Clinic at the "Dr. Georgi Stranski" UMHAT Hospital - Pleven. One part of the patients- 34 were hospitalized several times: 28 were hospitalized twice during the studied period, five 3 times, and one four times. Thirteen patients were operated on more than once. The period for which the study was carried out covers 40 months /2018-2021/.The study is retro- and prospective, single-center, covering the period January 2018 - December 2020. 641 patients with GIT pathology were admitted, but 180 hospitalizations of patients diagnosed with adhesive ileus were studied.

The presence and type of adhesions in each patient were evaluated according to the classification of Zühlke et al., 1990 before and after the use of anti-adhesive barriers, i.e. in the first and second operation the training period. Patients treated at the First Surgical Clinic are most often complicated patients. They are referred for treatment to the University Hospital both by personal doctors and specialists, as well as by other hospitals in the territory of the city and Northern Bulgaria. Unfortunately, most of the patients have an aggravated social and material situation, which makes it difficult to additionally apply an effective anti-adhesive barrier.

Results

The most widely used methods in the fight for the prevention of adhesions are the practice of good surgical technique and the use of different types of anti-adhesive barriers.



1. Prophylactic surgical measures against the formation of adhesions

Methods aimed at reducing peritoneal damage. The improvement of surgical technique, the cessation of the practice of mechanical removal of fibrin, etc. with gauze stilt-tupfers, the use of quality suture material are measures dependent on the operative team and do not require additional material resources. In recent years, minimally invasive surgery has increasingly become the operative method of choice.

Small incisions used as access to the abdominal cavity significantly reduce the area of peritoneal damage that could serve as a basis for the formation of adhesions. It has been extremely successful in operations in the area of the small pelvis (gynecological, urological and rectal and sigmoid operations), diaphragmatic hernias and places difficult to reach for conventional surgery. The lighter and shorter postoperative period is also an advantage;

2. Use of anti-adhesive barriers

A. Methods aimed at preventing fibrin formation. The use of heparin and antiplatelet agents should be done with extreme caution, following relevant laboratory parameters and pre-assessed risks for the patient;

B. Methods aimed at suppressing the inflammatory response. The most commonly used medications from this group are corticosteroids (methylprednisolone and dexamethasone), NSAIDs (almiral /diclofenac sodium/, dexofen /dexketoprofen/, perfalgan/paracetamol/). Antihistamines and colchicine are prescribed by the relevant specialists and are not systematically used in routine practice. The use of corticosteroid preparations in patients with anastomoses in the early postoperative period should be carefully specified;

C. Methods aimed at preventing infection. The use of antibiotics in the postoperative period is a routine practice, and after the result of the antibiogram, the therapy is adjusted if necessary;

D. Methods aimed at mechanical separation. From this group, medical devices containing hyaluronic acid (Adept in the past and Oxiplex) and crystalloid solutions are the most used;

The preventive methods from the last group, which have been proven to be the most effective, are still new on our market and are not widely used due to their high commercial price.

The analysis of the data from the medical history of the patients is as follows:

a) In the group of conservatively treated patients with anti-adhesive prophylaxis in the past during some of the operative interventions, there are five - gel was used in three, Dual Mech anti-adhesive cloth in one, anti-adhesive gel, corticosteroid medication and low-molecular heparin in one.

b) Of our 80 operations, in 35 (43.75%) prophylaxis was performed, respectively:

- anti-adhesive gel in 27 operations;
- two-component planned at 5;
- corticosteroid medication in 4 operations;
- in 7 early low molecular weight heparin.

In some patients there is a duplication of methods (Table 1).

Table 1.

Analysis of the degree of adhesions and the presence of anti-adhesive prophylaxis

		Grade					Total
		No adhesions observed	I grade	II grade	III grade	IV grade	
Anti-adhesion prevention	No	2	5	3	0	4	14
	Yes	1	2	6	7	5	21
Total		3	7	9	7	9	35

The found statistical relationship between the degree of adhesions and anti-adhesion prophylaxis is close to the standard one, p= 0.066. The change in thinking and awareness of the need for prevention of adhesion formation is a success for both the surgeon and the patient.

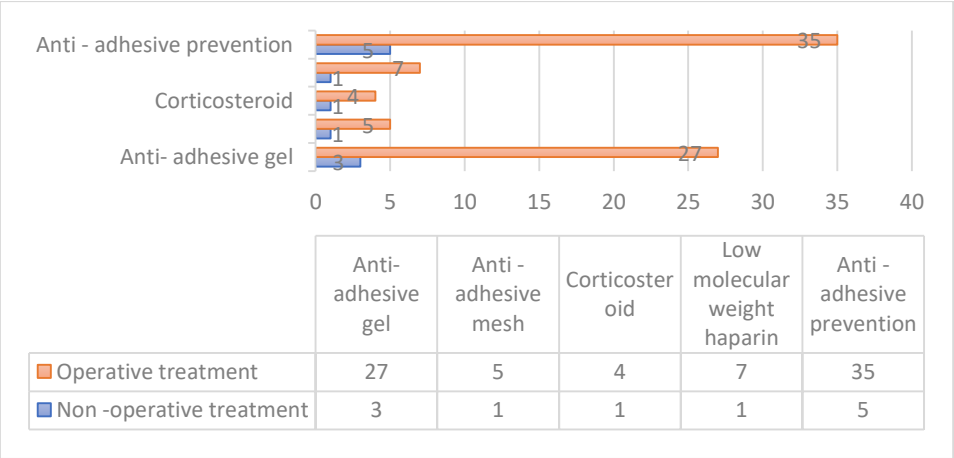


Fig. 1 Trends in the prevention of adhesion formation according to the type and frequency of anti-adhesive methods.

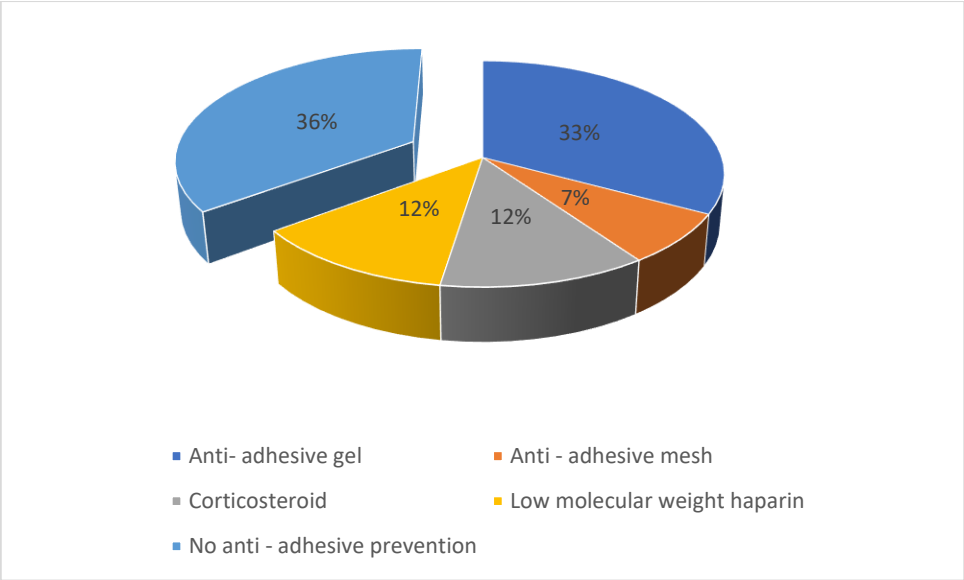


Fig. 2 Distribution of means of prevention in percent state

When analyzing the anti-adhesive prophylaxis carried out, without defining what (anti-adhesive gel or cloth, early application of low molecular weight heparin or corticosteroids), statistical significance was found (p = 0.000), which corresponds to the global trend. The largest share is the anti-adhesive gel. Low molecular weight heparin is part of DVT prophylaxis, but is not considered a reliable agent of choice for adhesions by most surgeons. The same subjective reasons prevail for the use of corticosteroid preparations and anti-adhesive solutions.

For the research period 2018 - March 2021, 13 of all patients underwent a repeat operation, and during this period they had one or more operations. This group of patients is extremely informative regarding the results of anti-adhesive prophylaxis. Adhesions are described according to the classification of Zühlke et al. during operative interventions, as well as the anti-adhesive agents used in the first, for the considered period, and in the second operations. We evaluated the patients who underwent the re-operation according to several indicators: use (yes/no) of medication or medical device for the prevention of adhesions and their type, assessment of adhesions according to a unified scale in both surgical interventions; comparing the results of different types of prevention.

We used anti-adhesive prophylaxis in 8 patients from the followed group during the first operation - in 5 patients anti-adhesive gel, in two - early low-molecular heparin, in 2 - corticosteroid preparation (in two of the patients there was a combination of anti-adhesive agents). There are seven patients who were prophylactic during the second operation (5 with anti-adhesive gel, two with early low molecular weight heparin). A reduction in the degree of adhesions was reported in 8 patients, in one patient the adhesions were of the same degree despite the preparation used, and in one patient the adhesions were of a higher degree (Tables 2 and 3).

Table 2.

Analysis of 2 groups of patients according to anti-adhesive prophylaxis.

		Anti-adhesive prevention		Total
		No	Yes	
Operation's number	1	5	8	13
	2	6	7	13
Total		11	15	26

Table 3.

Analysis of anti-adhesive agents according to the operation number.

No	Initials	Age	History number	Sex	Operation's number	Stage of adhesions	Anti-adhesive prevention method	Results
1	J.K.T.	75	2109/18	F	I operation	4	Gel	
		77	39185/20		II operation	3	Gel	Reduction
2	I.S.D.	77	27316/18	F	I operation	4	Gel	
		78	14105/19		II operation	4		Same
3	D.N.D.	60	1836/18	F	I operation	3	Gel	
		62	35615/20		II operation	1	LMWH	Reduction
4	M.V.P.	70	16854/18	F	I operation	2	LMWH	
		70	21553/18		II operation	4		Increased
5	V.D.R.	86	35027/19	F	I operation	4	None	
		86	37231/19		II operation	4		Same
6	N.D.K.	53	5958/19	F	I operation	3		
		54	40671/19		II operation	2	LMWH	Reduction
7	K.V.K.	42	9942/18	M	I operation	2		
		43	6696/19		II operation	3	GEL	Increased
8	L.B.N.	58	15696/19	M	I operation	2	LMWH	
		58	38778/19		II operation	1		Reduction
9	J.K.T.	70	6645/18	F	I operation	3	Corticosteroids	
		71	21098/19		II operation	2	Gel	Reduction
10	G.L.R.	64	5795/19	M	I operation	4	Gel, Corticosteroid	
		65	22807/19		II operation	1		Reduction
11	K.P.C.	68	7158/21	M	I operation	3	Gel	
		69	12119/21		II operation	1	Gel	Reduction
12	L.P.K.	67	1859/18	F	I operation	3	Gel	
		69	11944/20		II operation	2		Reduction
13	C.G.J.	78	13875/18	F	I operation	3	Gel	
		79	23578/19		II operation	1		Reduction

LMWH – Low molecular weight heparin

In fig. 3 and Fig. 4 show the relationship between the degree of adhesions during the first and the second surgical intervention after the use of a prophylactic anti-adhesive preparation or a prosthesis. Although not statistically significant, due to the small number of cases followed, the difference is visible.

Despite our limited experience, we can note that the anti-adhesive gel shows the most significant and visible effect when applied. It also has the least side effects, which makes it sought after and preferred.

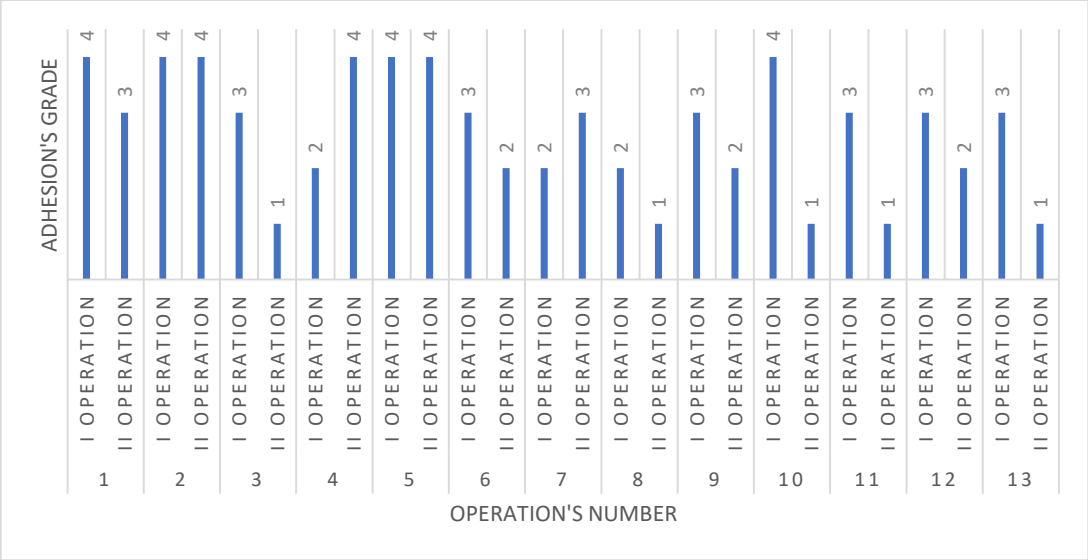


Fig. 3 Distribution of patients according to the type of adhesions before and after using an anti-adhesion barrier.

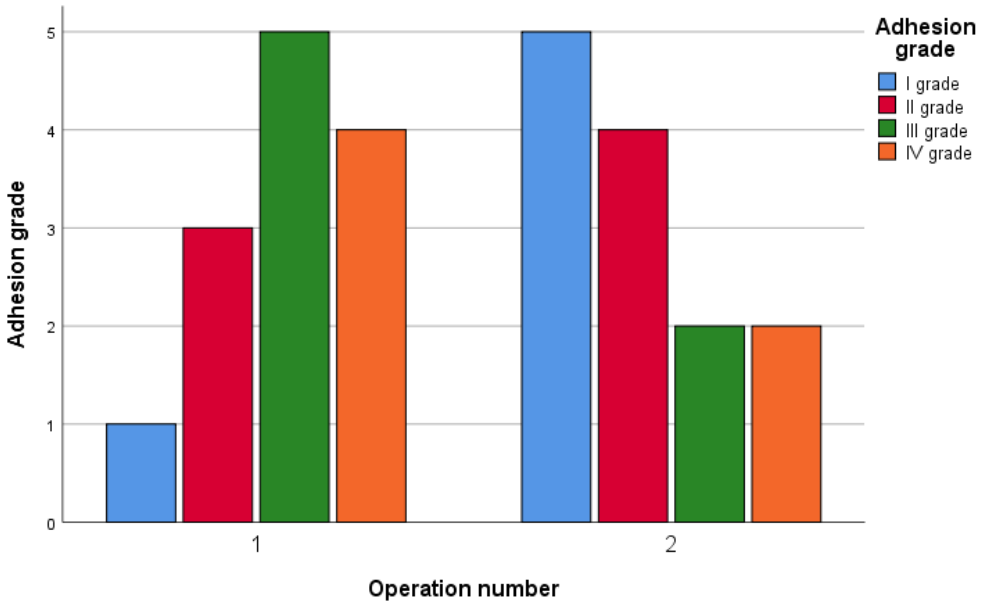


Fig. 4 Comparison of the degrees of adhesions when using an anti-adhesive product agent for the prophylaxis of adhesive disease. Only its high price limits its wide application (Fig. 5).

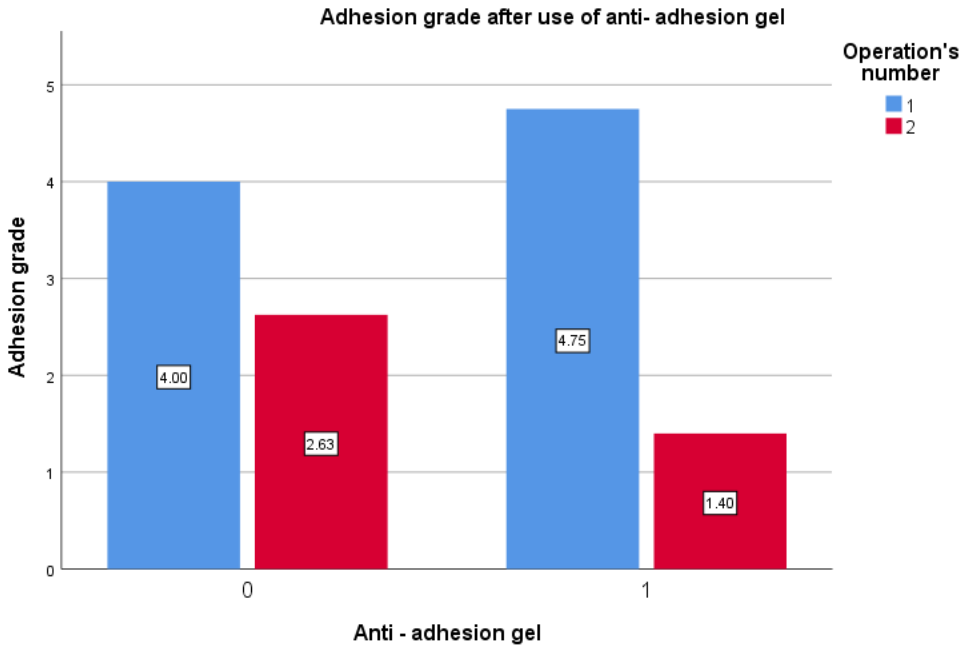


Fig. 5 Degree of adhesions after using anti-adhesive gel according to the number of the operative intervention.

Conclusions:

1. The use of anti-adhesive barriers leads to a reduction in the formation of adhesions.

2. The change in the surgeon's thinking in order to prevent adhesions leads to a change in the type of operation and improvement of the surgical technique.

3. The most popular anti-adhesive barrier used is anti-adhesive gel.

4. Minimally invasive surgery is an increasingly preferred operative method of choice.

Bibliography:

Adhesions and Anti-Adhesion Systems Highlights, LA Torres-De LA roche, r. cAmpo, r. DevAssy, A. Di spiezio sArDo , A. hooker , p. koninckx B. UrmAn, m. WALLWiener , rL De WiLDe;Facts Views Vis Obgyn, 2019, 11 (1): 137-149

Prevention of Post-Operative Adhesions: A Comprehensive Review of Present and Emerging Strategies Ali Fatehi Hassanabad , Anna N. Zarzycki Justin F. Deniset , and Paul WM Fedak , Kristina Jeon , Jameson A. Dundas , Vishnu Vasanthan;biomolecules Review,2021

Postoperative Abdominal Adhesions: Clinical Significance and Advances in Prevention and ManagementDemetrios Moris1 & Jeffery Chakedis1 & Amir A. Rahnemai-Azar2& Ana Wilson1&Mairead Marion Hennessy3& Antonios Athanasiou3 & Eliza

W. Beal1&Chrysoula Argyrou4& Evangelos Felekouras4 & Timothy M. Pawlik1Received:J Gastrointest Surg (2017) 21:1713–1722 DOI 10.1007/s11605-017-3488-9

Benefits and harms of adhesion barriers for abdominal surgery: A systematic review and meta-analysis; Ten Broek, Richard PGStommel, Martijn WJStrik, ChemaVan Laarhoven, Cornelis JHMKeus, FrederikVan Goor, Harry; The Lancet; 10.1016/S01406736(13)616876; ISSN1474547X

Cell barrier function of resident peritoneal macrophages in post-operative adhesions Tomoya Ito✉, Yusuke Shintani, Laura Fields, Manabu Shiraishi1, Mihai-Nicolae Podaru, Satoshi Kainuma, Kizuku Yamashita, Kazuya Kobayashi, Mauro Perretti , Fiona Lewis-McDougall & Ken Suzuki; https://doi.org/10.1038/s41467-021-22536-y OPEN

Pathophysiology and prevention of postoperative peritoneal adhesions Willy Arung, Michel Meurisse, Olivier DetryWilly; World J Gastroenterol 2011 Nov 7; 17(41): 4545-4553 ISSN 1007-9327 (print) ISSN 2219-2840 (online) © 2011 Baishideng. All rights reserved

Adhesive Small Bowel Obstruction in the Minimally Invasive Era Pepijn Krielen, Martijn WJ Stommel, Richard PG ten Broek and Harry van Goor; Intech; 2016

Peritoneal adhesions after laparoscopic gastrointestinal surgery; Valerio Mais; Valerio World J Gastroenterol 2014 May 7; 20(17): 4917-4925 ISSN 1007-9327 (print) ISSN 2219-2840 (online) © 2014 Baishideng Publishing Group Co., Limited. All rights reserved. TOPIC

Dexamethasone and sodium carboxymethyl cellulose prevent postoperative intraperitoneal adhesions in rats; XH Du1, JQ Liu2, K. Xin3 and GH Liu4; Brazilian Journal of Medical and Biological Research (2015) 48(4): 344-348, http://dx.doi.org/10.1590/1414-431X20144211 ISSN 1414-431X;

Adhesive small bowel obstruction – an update; Jia Wei Valerie Tong, Pravin Lingam, and Vishalkumar Girishchandra Shelat Yong; Acute Medicine & Surgery 2020;7:e587 doi: 10.1002/ams2.587

Epidemiology and Prevention of Postsurgical Adhesions Revisited Richard PG ten Broek, MD, PhD, Erica A. Bakkum, MD, PhD,y Cornelis JH Mvan Laarhoven, MD, PhD, MSc and Harry van Goor, MD, PhD, FRCS; Annals of Surgery; 2016

Anatomy, physiology, pathophysiology and treatment; Beyene, Robel Barbul, Adrian; DOI 10.1067/j.cpsurg.2015.06.001