

# MJA

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# Apotel® 1000mg / 6.7ml

## I.V. Paracetamol

### БЕЗБЕДНА АНАЛГЕЗИЈА

менаџирање на болка кога сте загрижени за безбедноста



I.V. paracetamol за прв пат во Европа е применет во 2001 година, а денес поради неговата докажана безбедност и ефикасност е прв од избор **аналгетик и антипиретик**.

#### Предоперативна и Интраоперативна Аналгезија:

Предоперативна аналгезија е дефинирана како третман кој што започнува пред оперативниот зафат се со цел да се превенира воспоставувањето на централна сензибилизација на болка.

i.v. paracetamol е безбеден, добро толериран лек со докажана ефикасност како **предоперативна и интраоперативна аналгезија** за умерена до средна болка при оперативни зафати.

**Голем број на клинички студии** ја докажуваат ефикасноста на i.v. paracetamol како **предоперативна и интраоперативна аналгезија**.

#### КЛИНИЧКА СТУДИЈА:

Ефект од **предоперативен i.v. paracetamol** за постоперативни аналгетски потреби кај пациенти кои се подложни на оперативни зафати. A Sreenivasulu, R Prabhavathi, 2015

**Цел:** Да се утврди ефикасноста на **предоперативната употреба на 1000mg i.v. paracetamol** кај постоперативните болки и аналгетски потреби кај пациенти подложни на хируршки зафати.

**Метод:** 60 пациенти беа поделени во две рандомизирани групи од по 30 пациенти.

**На I. Група** им беше администрирано **ампула од 1000mg i.v. paracetamol разредена 0,9%NaCl** p-ор 30 минути пред индукција (**ГРУПА П**),

**На II. Група** им беше администрирано **i.v. 0,9% NaCl** p-ор **100мл** 30 минути пред индукција (**ГРУПА НС**)

Сите пациенти беа индуцирани со i.v. thiopentone 5mg/kg, i.v. fentanyl 2µg/kg, i.v. vecuronium 0.1mg/kg

Постоперативниот резултат на болка беше мерен со **Визуелна Аналогна Скала (ВАС) од "0-10"**. Исто така беше забележувана и **постоперативната употреба на tramadol** како спасувачки аналгетик. Инциденцата на **постоперативно гадење и повраќање (ПОПП)** и други компликации исто така беа забележувани во пост оперативниот период.

**Резултатот** на постоперативната болка беше забележуван во интервали 15 мин, 30 мин, 1 час, 2 часа, и 6 часа.

**Заклучок:** Предоперативна администрација на **1000mg i.v. paracetamol** кај пациенти подложни на оперативен зафат обезбедува **статистички задоволителна аналгезија**, и ја **намалува постоперативната употреба на tramadol**. Оттука **1000mg i.v. paracetamol** може безбедно да се администрира како превенција при оперативни зафати.

#### Резултат:

**Табела 1:** Споредба на средниот резултат на болка (ВАС) помеѓу двете групи

Интервали	I Група П	II Група НС	P вредност
15 мин	2.06 ± 0.63	2.61 ± 0.56	0.0006
30 мин	2.35 ± 1.17	3.84 ± 1.55	0.0001
1 час	2.42 ± 1.12	2.87 ± 0.99	0.0989
2 часа	2.13 ± 1.06	2.52 ± 0.89	0.1219
6 часа	2 ± 0.52	2.52 ± 0.89	0.0549

**Табела 2:** Споредба за потребите од tramadol помеѓу двете групи

Интервали	I Група П	II Група НС	P вредност
До 1 час	4 (12.90%)	15 (50%)	0.0002
1-2 часа	3 (9.68%)	2 (6.45%)	0.64
2-6 часа	1 (3.23%)	3 (9.68%)	0.301
<b>Вкупно</b>	<b>8 (25.81%)</b>	<b>20 (64.52%)</b>	<b>0.002</b>

**Табела 3:** Споредба на ПОПП помеѓу двете групи

ПОПП	
I Група П	II Група НС
0	4

i.v. Paracetamol + јак опоид	<b>МНОГУ ЈАКА БОЛКА</b>
i.v. Paracetamol + слаб опоид	<b>ЈАКА БОЛКА</b>
i.v. Paracetamol + NSAID i.v. Paracetamol + rescue medicine	<b>УМЕРЕНА БОЛКА</b>
i.v. Paracetamol + rescue medicine	<b>СЛАБА БОЛКА</b>

**Мултимодално менаџирање на постоперативна болка**  
**I.V. Paracetamol** е атрактивна компонента за мултимодално менаџирање на болка.

- Синергистичко делување
- Зголемување на аналгетски ефект
- Значително намалување на болка
- Редукција на дозата на опоидни лекови за - 40% во првите 24 часа
- Намалување на несаканите ефекти поврзани со монотерапија на NSAID и опоидни лекови
- Ублажување на акутна и хронична болка

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case, we use a biological graft – cor-matrix, which is acellular segment of the submucous part of the small intestine, graft that is highly rich with collagen which physically covers the defect, but also stimulates the surrounding area to colonize with epithelial cells from the trachea. This graft is used mainly in cardio-surgery, but it proved to be great patch also in other surgical areas.<sup>6</sup>

If a tracheal lesion is suspected, a precise and definite diagnosis should be made as soon as possible, so the prompt and adequate treatment can be performed. It will disable further loss of the air while breathing and possible disorder of the respiratory function as well as it will prevent spread of an infection into the mediastinum and mediastinitis.

If subcutaneous emphysema of the neck occurs after surgical intervention where endotracheal anesthesia was provided, a possible lesion of the trachea should always be suspected and appropriate diagnostic and therapeutic measures need to be taken as soon as possible in order to prevent further complications (5).

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## OUR INITIAL EXPERIENCE WITH LAPAROSCOPIC RADICAL CYSTECTOMY

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### ABSTRACT

**Background and objectives:** In this era of minimally invasive surgeries, at the University Clinic for Urologic Surgery in Skopje, the laparoscopic radical cystectomy (LRS) was performed in 11 patients for the first time. In this paper, we have evaluated and summarized the anesthesia management, features and complications of LRC.

**Material and method:** In a retrospective manner, we evaluated all patents who underwent LRC at our Clinic over a one-year period. We noted and analyzed the following parameters: patients' demographic data, preoperatively and postoperatively, laboratory data, intraoperative fluid volume, estimated blood loss, allogeneic transfusion requirements. Respiratory parameters including arterial blood gas data, anesthesia time, surgical time, time of oral intake, admission to ICU, hospital stay and any adverse events during the whole period of hospitalization were also analyzed.

**Results:** This evaluation included 11 patients who were successfully operated and their data were analyzed. Patients had similar demographic characteristics. Estimated intraoperative blood loss was 472 ml and decreased transfusion requirement was noticed. Due to prolonged surgical time and CO<sub>2</sub> pneumoperitoneum, hypercarbia was observed in few patients. Patients had shorter period of bowel dysfunction and rapid oral intake, shorter hospital stay and fewer complications.

**Conclusion:** We believe that these data from our initial experience with newly performed minimally invasive radical cystectomy will reflect to our daily routine practice in radical cystectomy surgery towards laparoscopy. However, some larger prospective evaluation is to be made for summarizing the overall conclusions.

**Key words:** anesthesia consideration, laparoscopy, radical cystectomy.



## Introduction

Bladder cancer control depends on the aggressiveness of the resection, and hence, usually this procedure is done with open surgery (1-5). Today's minimally invasive laparoscopic surgery is a choice for management of urologic diseases. This approach is mainly reserved for kidney and prostatic conditions (6-8), although recent literature data support the feasibility of laparoscopic radical cystectomy (LRC) for patients with bladder cancer (9-12).

Open radical cystectomy (ORC) is mainly associated with a high morbidity. Alternative benefits from laparoscopy are well known. They include avoiding big incisions and thus decreasing pain, discomfort and blood loss, faster recovery, shorter hospital stay, and fewer complications.

In our hospital, laparoscopic radical cystectomy has not yet been established as a standard treatment for patients with bladder cancer. In the literature there are debates regarding results associated with ORC and LRC for the potential benefits of the perioperative and postoperative complications. Regarding anesthesiologists' point of view, patients presented for LRC experience longer surgical time, increased intra-abdominal pressure and carbon dioxide (CO<sub>2</sub>) insufflation, expressive Trendelenburg position and all consequences associated with all the above mentioned. Therefore, the aim of our study was to evaluate and summarize the anesthesia management, features and complications of LRC.

## Material and Methods

In the period from December 2018 until December 2019, 52 consecutive patients were treated for radical cystectomy. Out of these patients, 11 underwent LRC, performed by a team of three surgeons. In every patient radical lymphadenectomy was performed. All patients with confirmed metastasis by computer tomography or magnetic resonance did not undergo surgery. Carcinoma stage was determined by the histopathological report from transurethral biopsy and TNM classification, CT scans and MR images. The American Society of Anesthesiologist (ASA) score was assessed in all patients. We noted and analyzed the following parameters: patients' demographic data, preoperatively and postoperatively, laboratory data, intraoperative fluid volume, estimated blood loss, allogeneic transfusion requirements. Respiratory parameters (end-tidal carbon dioxide-EtCO<sub>2</sub> and respiratory rate), arterial blood gas data (pH, partial pressure of oxygen and carbon dioxide PaO<sub>2</sub>/ PaCO<sub>2</sub>), anesthesia time, surgical time, time of oral intake, admission to ICU, hospital stay and any adverse events during the whole period of hospitalization were also analyzed.

Statistical analysis was performed with SPSS program. Categorical variables were expressed as percentage and data were reported as median and ranges.

## Results

Over a one-year period, 11 patients underwent successful LRC. Demographic characteristics of the patients and characteristics of the surgery are shown in Table 1.

**Table 1.** Demographic characteristics and characteristics of the surgery

Variables	LRC (n=11)	
Gender (Male/Female)	11 / 1	
Age (years)	64.4 ± 9.6	
BMI	(normal 18.5-24.9%)	9
	(overweight 25-29.9%)	2
Smoking status (yes/no)	10/1	
ASA (II/ III)	3/8	
Duration of anesthesia (min)	450.90 ± 27.37	
Duration of surgery (min)	346.36 ± 24.60	

Data presented as mean and SD.

Postoperative pathohistological findings revealed stage IIC in one patient; stage IIB in 7 patients and IIA in 3 patients. Preoperative laboratory data findings demonstrated lower level of Hb in five patients. Intraoperative volume was maintained with crystalloids and natural colloids (albumen and FFP) 750 to 1000 ml per hour. Intraoperative blood loss was 472.72 ± 87.64 and transfusion requirement to maintain blood volume was as follows: patients with preoperative anemia were transfused with 2 units of RBC, 4 patients received one unit of RBC and 2 patients did not receive any transfusion. Respiratory parameters and arterial blood gas analyses were investigated at two time points: T0 before preoxygenation and induction in anesthesia and the second time point T1 was one hour after CO<sub>2</sub> insufflation. Respiratory parameters and arterial blood gas analysis are presented in Table 2.

**Table 2.** Arterial blood gas analyses

Variables	Investigated times	LRC (n=11)
SaO <sub>2</sub> %	T0	95.1 ± 2.54
	T1	97.2 ± 1.27
PaO <sub>2</sub> (mmHg)	T0	91.4 ± 9.1
	T1	165.3 ± 34
PaCO <sub>2</sub> (mmHg)	T0	36.4 ± 6.1
	T1	46.7 ± 9.8
Ph	T0	7.42 ± 0.04
	T1	7.30 ± 0.07

Data presented as mean and SD, SaO<sub>2</sub>% – oxygen saturation, PaO<sub>2</sub> – partial pressure of oxygen, PaCO<sub>2</sub> – partial pressure of carbon dioxide.

PaCO<sub>2</sub> was managed with mechanical ventilation parameters. PaCO<sub>2</sub> higher than 55 mmHg in the arterial blood gas were noticed in 2 patients. Hemodynamic data of the patients are shown in Table 3.

**Table 3.** Hemodynamic parameters

Variables	Investigated times	LRC (n=11)
HR	T0	85 ± 20.4
	T1	69 ± 11.5
MAP (mmHg)	T0	79 ± 10.2
	T1	74 ± 9.5
IAP (mmHg)	T1	12 ± 2.8
APP (mmg)	T1	64 ± 6.5

Data presented as mean and SD, LRC – laparoscopic radical cystectomy, HR – heart rate, MAP meddle artery pressure, IAP – intra-abdominal pressure, APP – abdominal perfusion pressure.

Abdominal perfusion pressure was maintained normal (above 60 mmHg) in each patient ensuring adequate tissue perfusion and oxygenation. Postoperative hospital stay was  $6.9 \pm 2.5$  days and only one patient was postoperatively admitted to ICU. Conversion to open surgery was not performed in any patient. The second postoperative day oral intake was started in all patients and no bowl dysfunction was noticed. The observed postoperative complications included infection in one patient and subcutaneous emphysema in another patient.

## Discussion

This study presents our initial experience with minimally invasive laparoscopic radical cystectomy. Our findings appeared comparable with those found in the literature (9-14). We noticed lower estimated blood loss, resumption of bowel activity, early mobilization and shorter length of hospital stay in our group of patients, which is similar to the results presented in the meta-analysis (9-11). On one hand, there were notable alterations in arterial, blood gases analyses towards hypercarbia, which was expected due to the prolonged surgical time and CO<sub>2</sub> insufflation in laparoscopy. On the other hand, Trendelenburg position is well tolerated, but it may have impact on ventilation and oxygenation especially if patients have respiratory comorbidities. Another study of Gavrilovska and coauthors showed similar alteration in arterial blood gasses and mechanical ventilation in patients with increased intra-abdominal pressure (15,16). In this evaluation, patients were managed with appropriate ventilation and did not have any prolonged adverse events or encountered any mental or neurological disorders. We had two cases when hyperventilation showed no improvement; the intra-abdominal pressure was then reduced to less than 15 mmHg, and the condition improved. Metabolic acidosis occurred in 2 patients and sodium bicarbonate was administered.

Closhen et al. in their study showed decreased cerebral oxygen saturation over 4 hours with Trendelenburg position and CO<sub>2</sub> pneumoperitoneum in patients who had undergone robotic surgery (17). Similarly, decreased cerebral oxygen saturation was shown in the study of Kuzmanovska et al. (18) Collins et al. reported that when more experienced team accomplished the procedure, improved performance and decreased surgical time was noticed (19). The reported surgical time in their study was 441 minutes, 368 minutes, 307 minutes in 30 cases, 30-50 cases

and in more than 50 cases, respectively. In our 11 cases we had median surgical time of 450 minutes. These are our initial results and our surgery team has to gain more experience in order to shorten the duration of surgery.

LRC is a technically challenging procedure. It offers advantages compared to the classic open radical cystectomy despite longer surgical time. Results presented in the literature showed benefits of LRC over ORC. Laparoscopy as minimally invasive procedure and hence it is the main reason for minimal blood loss and hemorrhage, which makes it safer surgery, and leads to less adverse events. Estimated blood loss in our group was 472 ml and we noticed decreased transfusion requirement. Novara et al. reported 375 ml estimated blood loss and lower transfusion rate in LRC compared to ORC group (11). On the other hand, Khan et al. did not find significance in blood loss and transfusion requirement between LRC and robotic surgery. Similar results were reported in the meta-analysis and systematic review of Fonseka (9).

In only few of the 11 evaluated patients complications were observed. One patient had subcutaneous emphysema and one patient had infection, which means in total 18%. Our results are similar to those presented in the literature. Massumoto et al. in their randomized trial included 10 patients with LRC and found adverse events in only 3 of them. A systematic review and meta-analysis comparing complications among robotic, LRC and ORC showed rates of 28%, 72%, and 47%, respectively (9). In another review, complication rates of 8% and 42% between LRC and ORC were reported (20).

Our data demonstrated that although LRC did not show severe complications in the small number of analyzed patients, in the literature taking precaution is advised for patients undergoing ORC. This is because these patients usually have a history of abdominal surgery prior to radical cystectomy.

## Conclusion

In this new minimally invasive surgery era, laparoscopy provides effective cancer control with minimal impact on the quality of life. We believe that these data from our initial experience with minimally invasive radical cystectomy will reflect our daily routine practice in radical cystectomy surgery. We can advocate LRC over ORC. However, some larger prospective evaluation is to be made for summarizing the overall conclusions. LRC is a technically challenging procedure, but it can have excellent results performed by an experienced team.

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## ANESTHETIC MANAGEMENT OF PATIENT WITH SYSTEMIC SCLERODERMA SCHEDULED FOR RIGHT LOWER LOBE RESECTION OF THE LUNG

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### ABSTRACT

Progressive systemic sclerosis (PSS) or scleroderma is rare progressive fibrotic disorder of the connective tissue. Together with the connective tissue changes, atrophy of the skin, the involvement of various internal visceral organs may be present in these patients, as well. Not rarely, involvement of the alimentary tract, lungs, heart, kidney, CNS, the presence of the autoantibodies, collagen deposition on different body parts, together with the possible profound vascular hypersensitivity, are reported separately and in combination as possible anesthesiology challenges, sometimes even reported with detrimental outcome. We present a case of a successful anesthesiology management of a patient with PSS undergoing thoracic surgery and we discuss facts from the literature about this disease's issues and anesthesia.