

Summary

MORPHOLOGICAL AND IMMUNOHISTOCHEMICAL DIAGNOSIS OF GASTROINTESTINAL STROMAL TUMOURS

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Key words: gastrointestinal stromal tumour, immunohistochemical markers, endoscopic submucosal dissection.

Gastrointestinal stromal tumors (GIST) are the most common mesenchymal tumours of the gastrointestinal tract arising from interstitial cells of Cajal, mainly in the stomach and small intestine. GIST has oncogenic mutations in KIT or PDGFRA gene in 85-90% of tumours. For diagnosis of GIST it is necessary to use immunohistochemistry with specific labelled antibodies that stain molecule CD117 (c-kit). Other possible diagnostic markers of GIST are CD34, DOG-1, desmin, vimentin, MSA, S100. Ki-67 is a marker for detecting the GIST malignancy potential. There is a possibility to diagnose GIST in stomach and intestinal tract at the early stage of progression with further endoscopic minimally invasive treatment. A retrospective evaluation of the diagnostic findings and outcomes of mini-invasive treatment of GIST (Medical Centre "Oberig" for 2008 — 2015) was carried out. Before the surgical operation all patients underwent esophagogastroduodenoscopy, videocolonoscopy and endoscopic enteral biplane ultrasound examination to exclude the possibility of the tumour invasion. 10 cases of non-epithelial tumours of gastrointestinal tract were diagnosed by endoscopy: 8 (80%) of them were classified as GIST and 2 (20%) were classified as leiomyomas. 4 GISTs (50%) were localized in the stomach, 2 (12, 5%) were detected in the small intestine, 1 (12, 5%) was found in ascending colon, 2 (25%) were in rectum. Leiomyomas were found in oesophageal region. All tumours were removed by endoscopic submucosal dissection within healthy tissue that was confirmed by morphological examination. We used the immunohistochemical markers for diagnosis of gastrointestinal stromal tumours and leiomyomas and for detection the malignancy potential of GIST.

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FREQUENCY OF SIRS OCCURRENCE IN PATIENTS WHO HAVE UNDERGONE THORACOTOMY

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Development of systemic inflammatory response syndrome (SIRS) can considerably complicate patients' condition, leading to multiple organ failure or immunosuppression with high probability of purulent complications as a result of compensatory CARS arising in the most severe cases. Relatively traumatic operational access is one of the thoracic patients' treatment peculiarities. This fact along with main surgical intervention can result in the SIRS development. The aim of our study was to assess occurrence rate of SIRS and the severity of its separate components in patients who have undergone thoracotomy. The study involved case histories of 62 patients who got treatment at the Thoracic Department of the Regional Poltava Hospital during 2014 year. The case histories were retrospectively analyzed. Patients, included into the study, were divided into two groups: I group was made up of the patients with purulent pathology of lungs and pleura; II group involved the patients who had had surgical operation caused by aseptic pleuropulmonary diseases. SIRS occurrence in postoperative period was observed in the majority of the patients who have undergone thoracotomy that can be explained by operative access made without any correlation with the type of surgical operation. Considering higher values of WBC count, percentage of immature neutrophils and longer SIRS duration in postoperative period among the patients with aseptic pleuropulmonary diseases it may be recommended to include non-steroidal anti-inflammatory drugs into the treatment course of such patients.

Key words: thoracotomy, SIRS, occurrence.

НДР кафедри хірургії №2 ВДНЗУ «УМСА» «Лікування та профілактика гнійно-септичних ускладнень в умовах гіпердинамічного системного запалення при гострій хірургічній патології» (держреєстрація № 0111U006299)

Introduction

Noticeable postoperative complications are reported to develop in more than one fifth of patients who have undergone non-cardiac thoracic operations. It results in prolonged hospital staying and requires additional expenses [1]. One of the most severe postoperative complications is systemic inflammatory response syndrome (SIRS), which can considerably aggravate patients' condition. If the SIRS response is quite pronounced, early onset of multiply organ failure (MOF) can develop that often leads to fatal outcomes, but in many cases timely intensive care helps to overcome critical conditions

and to survive the initial insult. As time proceeds, certain aspects of SIRS are intentionally down-regulated to minimize autogenous tissue injury. As a consequence, critically ill patients can develop severe immunosuppression caused by malfunctioning of adaptive immune system [2].

According to Ward et al., "CARS, similar to SIRS, is a complex and incompletely defined pattern of immunologic responses to severe insult. The difference was that while SIRS was a pro-inflammatory syndrome that seemed tasked with killing infectious organisms through activation of the immune system, CARS was a systemic deactiva-

tion of the immune system tasked with restoring homeostasis from an inflammatory state. Additionally, it has a distinct set of cytokines and cellular responses and has a powerful influence on clinical outcomes in sepsis” [7]. Relatively traumatic operational access, which is connected with dissection of wide muscle volumes during thoracotomy, is typical for the operations of thoracic patients. This fact along with main surgical intervention can lead to SIRS development with all mentioned above negative consequences [3-6].

The aim of our study was to assess occurrence rate of SIRS and the severity of its separate components in patients who have undergone thoracotomy.

Objects and methods of study (Study design)

Case histories of patients who were treated at the Thoracic Department of the Regional Poltava Hospital during 2014 were retrospectively analyzed. The criteria of inclusion were the following: 1) the fact of prearranged operative treatment; 2) thoracotomy as an operative access. The excluding criteria included: 1) HIV infection; 2) cancerous disease; 3) SIRS diagnosed before the operation. Average age of patients was 47.3 ± 6.35 years. 74.2 %

of patients were men, 25.8 % were women. Patients, who were enrolled in the study, were divided in two groups: I group was made up of the patients with purulent pathology of lungs and pleura; II group included the patients who had had surgical operations due to aseptic pleuropulmonary diseases. There were no significant difference between the groups by age or gender ($p < 0.05$).

These two groups of patients with SIRS developed in postoperative period were additionally divided into Ia and IIa subgroups respectively. Some vital parameters as body temperature, pulse rate, respiration rate, blood pressure, white blood cell count (WBC) and percentage of immature neutrophils were monitored for first 10 days of postoperative period.

Results and discussion

Twenty-six patients were included into I group and thirty-six patients made up II group. SIRS was diagnosed in 20 patients (76,9% — Ia group) of the I group. In the II group 24 patients (66,7% — IIa group) demonstrated signs of SIRS during postoperative period (Fig. 1). There was no statistically significant difference in occurrence rate of SIRS between I and II groups ($p = 0,66$).

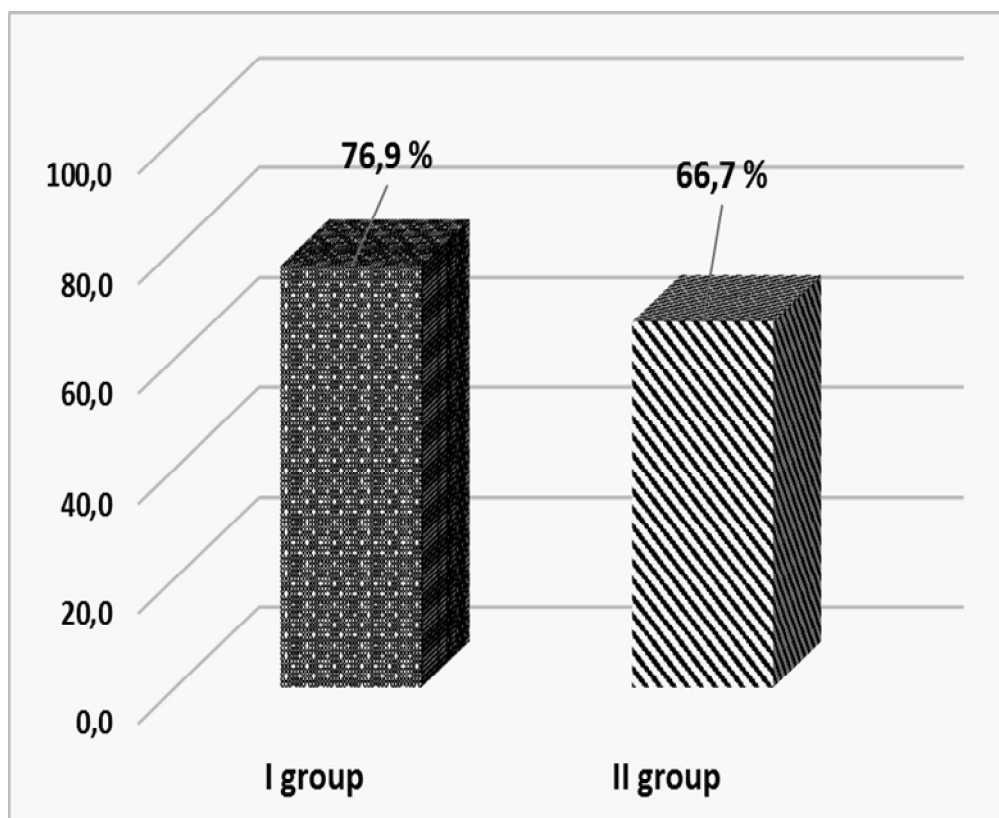


Figure 1. Occurrence rate of SIRS in patients of I and II groups, %

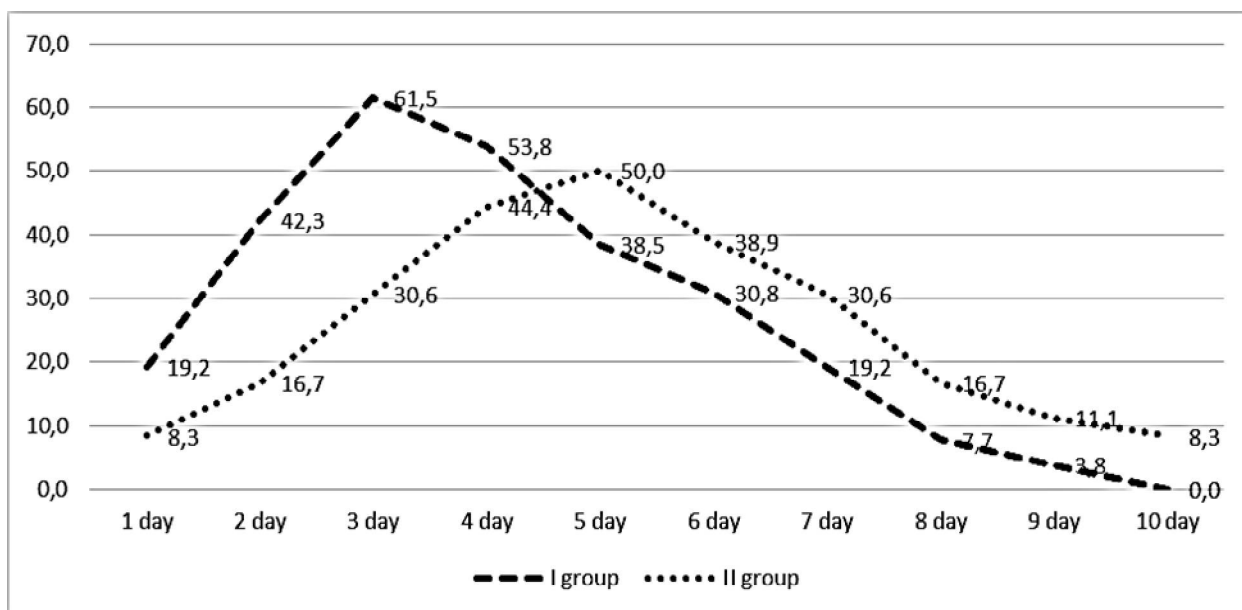


Figure 2. Vital parameters of patients with SIRS during early postoperative period, %

Parameter	Ia grup			IIa grup			P
	LQ	Med	UQ	LQ	Med	UQ	
Body temperature, °C	38,80	39,45	39,90	38,06	39,33	39,62	0,37
Respiration rate, min ⁻¹	22,00	23,00	24,00	21,00	22,00	24,00	0,41
Pulse rate, min ⁻¹	95,34	103,94	110,26	98,65	102,47	111,31	0,77
WBC count, *10 ⁹ cells/l	11,40	12,38	13,81	12,95	14,57	16,30	0,15
Immature neutrophils, %	13,00	13,00	13,00	13,00	14,00	16,00	0,17

Table. Comparison of distinct SIRS criteria between Ia and IIa groups.

Note: LQ – 25th percentile; Med – median; UQ – 75th percentile

In I group maximal number of patients with SIRS was observed on the 3rd and 4th days after the operation and then decreased rapidly during 5th-8th days (Fig. 2). Unlike that, in the II group the maximal number of the patients with SIRS was registered on the 4th-6th days after the operation. Moreover, since the 5th day, the proportion of patients with SIRS in the II group was constantly higher than in the I group (p=0,58).

Comparison of distinct SIRS criteria revealed that values of WBC and percentage of immature neutrophils were lower in the patients with purulent pathology (Ia group) than in the patients with aseptic pleuropulmonary diseases (IIa group). Differences between Ia and IIa groups caused by these factors are shown by p-values that were close to statistical significance (p=0,5-0,17). Statistical testing of other parameters showed no significant differences between the groups (Table).

Conclusions

Development of SIRS in postoperative period is observed in the majority of patients who have undergone thoracotomy as operative access (71,0 % among the patients who were enrolled in the study)

without any correlation with the type of operative method. Considering higher values of WBC count, percentage of immature neutrophils and long SIRS duration in postoperative period among the patients with aseptic pleuropulmonary diseases we can recommend to include nonsteroidal anti-inflammatory drugs into to the treatment plan for such patients.

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Реферат

ЧАСТОТА ВИНИКНЕННЯ SIRS СЕРЕД ПАЦІЄНТІВ, ЯКІ ПЕРЕНЕСЛИ ТОРАКОТОМІЮ

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Ключові слова: торакотомія, синдром системної запальної відповіді, ступінь вираженості.

Виникнення синдрому системної запальної відповіді значно обтяжує стан пацієнта, призводячи до розвитку поліорганної недостатності або імуносупресії. Використання порівняно травматичного оперативного доступу, виконання якого пов'язане з дисекцією значних об'ємів м'язової тканини при торакотомії, є однією з відмінних рис хірургічного лікування пацієнтів торакального профілю, що разом з оперативним прийомом потенційно може індукувати розвиток SIRS. Метою дослідження було оцінити частоту виникнення SIRS та ступінь вираженості окремих його складових у пацієнтів, що перенесли торакотомію. До дослідження було включено 62 пацієнти, які проходили лікування у торакальному відділенні Полтавської обласної клінічної лікарні протягом 2014 р. Виникнення SIRS в післяопераційному періоді спостерігається у більшості пацієнтів, що перенесли торакотомію незалежно від використаного оперативного прийому. Враховуючи більш високі показники кількості лейкоцитів, питому вагу незрілих форм лейкоцитів, а також більшу тривалість SIRS у післяопераційному періоді у групі пацієнтів без гнійних вогнищ в якості одного із можливих напрямків оптимізації лікувальної програми даної категорії хворих може бути розглянуте рутинне призначення нестероїдних протизапальних засобів.

Реферат

ЧАСТОТА ВОЗНИКНОВЕННЯ SIRS СРЕДИ ПАЦИЕНТОВ, ПЕРЕНЕСШИХ ТОРАКОТОМИЮ

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Ключевые слова: торакотомия, синдром системного воспалительного ответа, степень выраженности.

Развитие синдрома системного воспалительного ответа может значительно отягощать состояние пациента, приводя к развитию полиорганной недостаточности или иммуносупрессии. Одной из особенностей хирургического лечения пациентов торакального профиля является использование сравнительно травматичного оперативного доступа, который наряду с оперативным приемом потенциально может индуцировать развитие SIRS. Целью исследования являлась оценка частоты возникновения SIRS и степени выраженности отдельных его составляющих у пациентов, перенесших торакотомію. В исследование были включены 62 пациента, находившиеся на лечении в торакальном отделении Полтавской областной клинической больницы в 2014 г. Возникновение SIRS в послеоперационном периоде наблюдается у большинства пациентов, которые перенесли торакотомію, независимо от использованного оперативного приема. Учитывая более высокие показатели количества лейкоцитов, удельный вес незрелых форм лейкоцитов и большую длительность SIRS в послеоперационном периоде в группе пациентов без гнойных очагов, в качестве одного из возможных направлений оптимизации лечебной программы у данной категории больных может быть рассмотрено использование нестероидных противовоспалительных препаратов.