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Research Letter

Surgical treatment of combat colonic injuries in the Ukraine antiterrorist operation

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Dear Editor

Combat injuries are more often associated with blast, penetrating, and high-energy mechanisms than civilian trauma[1]. These different mechanisms make combat trauma to the abdomen a serious problem that, if undiagnosed, can lead to fatal outcomes. Injuries of the colon account for 15 per cent of all combat injuries. Even after many years of treatment improvements, there remains ongoing debate about optimal management and whether performing an anastomosis is safe[2]. The treatment of colonic combat injuries has evolved from a typically conservative approach to the more specific operative guidance tailored to help choose between resection with anastomosis and stoma formation[3–5]. When presented with a patient with a colonic injury, an individualized approach to diagnostics and surgery should be applied.

This was a retrospective analysis of prospectively collected data on colonic injuries sustained during the antiterrorist operation in Ukraine. All patients who survived the battlefield and transportation were included in the analysis. Two groups were analysed: the first consisted of combatants treated from 2014 to February 2015 by the traditional approach. In this group, the severity of the patient's condition was assessed by clinical signs and arterial BP only. In the second group, patients were treated between March 2015 and 2018 in an individualized approach. Here, the surgical strategy was chosen according to the severity of the condition (assessed using the Abbreviated Injury Score and perfusion index), the severity and degree of damage to abdominal organs (evaluated using focused assessment with sonography in trauma protocol), and ballistic characteristics causing the wound. Patients with severe trauma were admitted to the antishock ward, and those with extremely severe trauma were taken to the operating room where antishock measures were applied with further evaluation.

All procedures were conducted in accord with the ethical standards of the Committee on Human Experimentation of the institution in which the experiments were done or in accord with the ethical standards of the Helsinki Declaration of 1975.

In total, 83 patients were included, 42 in the first group and 41 in the second. The two groups were comparable in age and severity of trauma. The colonic trauma was isolated in six patients (14 per cent) in the first group and in three (7 per cent) in the second group, whereas it was multiple or combined with other injuries in 36 (86 per cent) and 38 (93 per cent) respectively. Surgical procedures for both groups are shown in *Fig. 1*. Some 28 patients (76 per cent) had postoperative complications in the first group compared with 19 (49 per cent) in the second group ($P = 0.016$). There were 11 deaths (26 per cent) in the first group (6 due to septic complications and 5 caused by traumatic shock with significant blood loss) *versus* 4 (10 per cent) in the second group (3 due to traumatic shock and 1 from pulmonary embolism) ($P = 0.049$).

This study obviously has some limitations. It comprises a retrospective analysis of data from a single centre. There is also possible selection bias as most of the combatants with severe colonic injuries died in battle or during transfer, and may not have been included in the study. However, this study includes the largest numbers coming from a Western country with very recent military action. Moreover, the survival and complication data are reliable and complete, and the analysis is very thorough and precise.

Adapting individualized diagnostics and treatment strategies to patients with colonic injuries led to a significant reduction in the delay between the injury and surgery, postoperative complications, and mortality. Differentiating patients after undertaking an extended clinical assessment along with other diagnostic measures to evaluate the severity and ballistic characteristics of the colonic injury, and adapting surgical tactics to the findings, is a proven way to improve the emergency care of patients with combat colonic injury.

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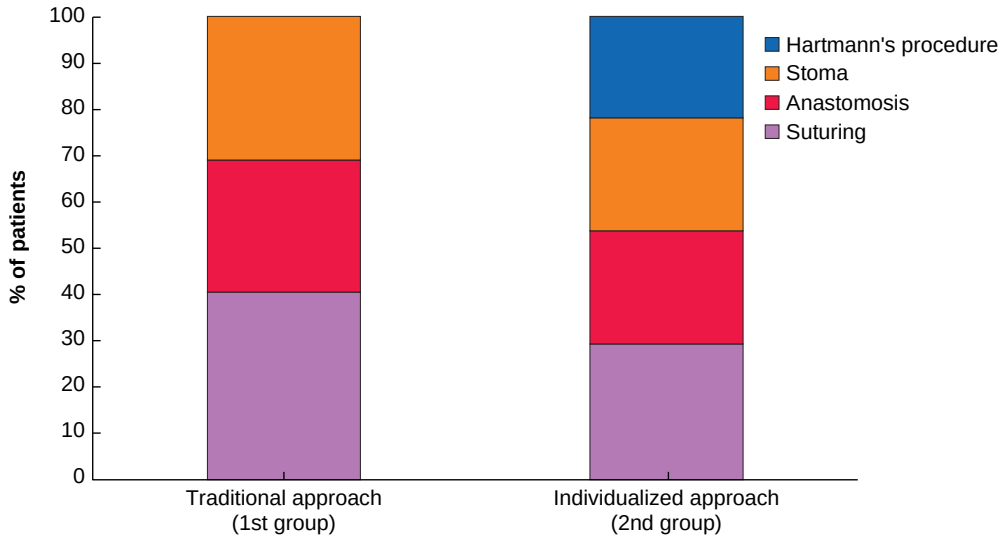

Fig. 1 Distribution of surgical procedures between groups treated in Ukraine during the antiterrorist operation in 2014–2018

Author contributions

Ievgen Kvasnevskyi (Conceptualization, Data curation, Investigation, Methodology, Resources, Validation, Writing—review & editing), Rasa Bradunaite (Conceptualization, Methodology, Validation, Writing—original draft, Writing—review & editing), Mikhail Kashtalyan (Conceptualization, Data curation, Methodology, Project administration, Supervision, Visualization, Writing—review & editing), Aleksandr Kvasnevskyi (Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Software, Writing—review & editing), Narimantas Samalavicius (Conceptualization, Methodology, Resources, Supervision, Writing—review & editing), Algirdas Konradas Liekis (Formal analysis, Investigation, Software, Visualization), Daiva Luniene (Conceptualization, Funding acquisition, Validation, Writing—original draft), and Audrius Dulskas (Conceptualization, Project administration, Supervision, Validation, Visualization, Writing—review & editing)

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