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Implementation of VATS and NIVATS in thoracic trauma

Thoracic trauma accounts for 20-25% of injuries and is a cause of 16000 deaths in the USA annually [1]. In hospital mortality in severe isolated thoracic trauma is 49,3% [2]. All treatment is done according to ATLS protocols. Thoracic trauma according to the mechanism is divided on blunt and penetrating. Emergency Department Thoracotomy (EDT) has strict indications and contraindications to be performed. Video Assisted Thoracic Surgery (VATS) is used in thoracic trauma in emergency, early and late time [3]. The value of VATS is that it prevents from unnecessary thoracotomy or laparotomy in 62% of cases [4]. Non-intubated VATS (NIVATS) in thoracic surgery is started in early 2000 years and now complex and difficult thoracic surgeries are performed [5,6]. The role of Non-intubated VATS (NIVATS) in thoracic trauma is not clearly defined. There are a few articles and cases of thoracic trauma treated with NIVATS.

Materials and methods

During the period of 2020-2025 years 985 hospitalized patients to the Kyiv City Hospital # 17, polytrauma department, were analyzed with thoracic trauma (blunt 722, penetrating, 263). All patients who underwent open or minimally invasive thoracic surgery were assessed by anesthesiologist. VATS and NIVATS was performed in 11 cases.

Results

VATS and NIVATS was performed in 11 cases. 10 patients were males, 1 patient female. The mean age of patients was 34,27 years (22-45) 4 patients were operated in emergency to stop the bleeding. 2 cases were performed in VATS and 2 cases in NIVATS way of surgery. 7 cases were done as early surgery for removal of clotted hemothorax, removal of foreign bodies and as diagnostic procedure in 1 case to confirm the diagnosis of pericardial rupture. We didn't observe any complications in these trauma patients, who were selected for VATS and NIVATS surgery. Chest drains were removed on 2-4th postoperative day. All patients received a multimodal analgesia and early rehabilitation (in most cases at the day of surgery or on the next day) as parts of Enhanced Recovery After Surgery (ERAS) guidelines.

Conclusion

Correct anesthesiological assessment of the patient's condition and compensatory capabilities, as well as rapid surgical diagnosis of the extent of thoracic trauma and the possibility of VATS/ NIVATS to eliminate the problem (stop bleeding...), makes them a possible alternative to open surgery.

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Biography

Dr. Vasyl Tkalic is a thoracic surgeon at the Shupyk National Healthcare University of Ukraine, where he is also pursuing his doctoral studies at the Chair of Surgery #1. With a strong clinical background and over a decade of surgical experience, he has established himself as a dedicated specialist in thoracic and trauma surgery.

Dr. Tkalic completed his Doctor of Medicine degree at O.O. Bogomolets National Medical University in Kyiv in 2011, followed by extensive surgical residency training at Municipal Hospital No. 17 and the P.L. Shupyk National Medical Academy of Postgraduate Education. From 2014 to 2025, he served as a thoracic surgeon in the Polytrauma Department, and later advanced his expertise as a thoracic surgeon at Hospital Feofaniya between 2021 and 2023.

He has actively participated in numerous prestigious international scientific programs and training workshops over the past ten years, including the EACTS Academy Course in the UK, ESTS Thoracic Surgery Schools across Europe, trauma and emergency surgery seminars in Austria and South Africa, and advanced VATS and transplant training in Turkey, France, Denmark, Vienna, and Shanghai.

Fluent in Ukrainian, Russian, and English, Dr. Tkalic continues to advance his clinical and academic contributions to thoracic surgery both in Ukraine and internationally.