

**Confirmation of the correct position of the endotracheal tube using the auscultation method - considering the order in which the procedure was performed.**



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To the Editor,

Intubation of endotracheal route using direct laryngoscopy is the most commonly used technique of instrumental airway clearance.[1] It is used both during routine procedures with general anesthesia and critical situations such as sudden cardiac arrest. Intubation, however, is a treatment that is commonly regarded as difficult and invasive, which is why it is only reserved for experienced medical personnel.

One of the most serious problems that occur during classic endotracheal intubation is confirmation of its proper placement in the lower respiratory tract. According to the recommendations of the European Resuscitation Council, the clinical assessment of the location of the endotracheal tube should first be based on the observation of chest movements, then on the symmetrical dehumidification of the pulmonary fields, and finally on the percussion of the abdomen.[2] The unrecognized rapid placement of the endotracheal tube in the esophagus may have tragic effects due to progressive hypoxia as well as an increased risk of regurgitation due to gastric distension during ventilatory attempts.

There is a question about the validity of the commonly used sequence of auscultating the patient immediately after the intubation. Should the first hearing of the upper abdomen decrease the risk of possible complications resulting from the introduction of the tube into the esophagus? In the preliminary studies conducted on human cadavers, it appears that auscultatory diagnosis of bubbling sounds during gastric ventilation is recognized in approximately 95% of cases.

Auscultation of the pulmonary fields may be unreliable, especially in obese patients due to difficulty in passing sound waves through the thick walls of the chest.[3] The currently recommended use of capnometers or at least carbon dioxide detectors may be helpful, but in a situation of cardiac arrest, readings from these devices are usually disturbed and unreliable.[4] The greatest sensitivity is shown by capnographs with a graphical wave display, but their availability in pre-hospital conditions is limited.[2]

There is no doubt that the first and the most common way to verify the position of the endotracheal tube is to observe chest movements and auscultation. A skilled practitioner who will properly visualize the glottis and under the control of the eyes introduces a tracheal tube, usually has no doubts about its location in the lower respiratory tract. It is then sensible that the verification of the location should first focus on the exclusion of intubation, not the esophagus. However, in pre-hospital conditions, the percentage of unsuccessful tracheal intubation is significant, so considering the recommendation of auscultation of the upper abdomen in the first place can bring tangible benefits in the pace of recognizing the error.

Modern solutions using video laryngoscopy are increasingly used.[5] The quality of these devices certainly allows to minimize the failure of endotracheal intubation. Unfortunately, their cost may cause that they will not be quickly put into public use in the emergency room.

#### **Disclosure statement**

No potential conflict of interest was reported by the authors.

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