

Accelerated Postoperative Rehabilitation: the Aeronautic Model

Monograph by **Adrian Belii**, MD, PhD, Associate Professor, Department of Anesthesiology and Intensive Care
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“Fast-track surgery”, called later “enhanced recovery after surgery”(ERAS) is a relatively new approach to the surgical patient and overall postoperative period. For the first time, the ERAS concept was elaborated and presented by Henrik Kehlet et al. in 1997 [1]. The essence of this concept is that a postoperative morbidity, which is not caused by the imperfect surgical technique, must be sought in the pathophysiological mechanism of the surgical stress. ERAS is based on two pylons: 1. Optimization of clinical pathways for surgical patients; 2. Canceling unnecessary “traditional” treatments and implementation of evidence-based medicine principles instead of them.

So far, the ERAS concept has been tested by many teams from different countries on patients with various comorbidities and of different age, who received various types of surgery. Quasi-unanimous conclusion was that the benefits of this approach were obvious: a significant reduction in the length of hospital stay, reduced postoperative morbidity, accelerated patient’s return to homeostasis and cost reduction.

ERAS concept can be easily upgraded, reconfigured and/or adapted according to various parameters: patient’s profile, type of surgery or structure of health care system. In this context, the monograph of Dr. Adrian Belii “Accelerated Postoperative Rehabilitation: the Aeronautic Model” [2] provides an original approach that improves and optimizes the perioperative management of elective surgical patients, described by H. Kehlet.

From the beginning, I would like to mention the words “aeronautic model” in the title. In the past decade, hospitals tried to borrow the organizational patterns of High Reliability Organizations from nonmedical fields, for example, aviation and nuclear industry. Thus, by analogy the author analyzes functioning of an airport and hospital, where the aircraft is the patient, the crew - the medical team and the flight from point A to point B – the perioperative management and recovery.

The monograph has 168 pages, contains 21 tables and 58 figures. The monograph consists of two parts: (1) medical and biological aspects of the aeronautic model of accelerated postoperative rehabilitation and (2) medical management of the aeronautic model.

The first part of the monograph consists of six chapters and describes in terms of recent literature data and Dr. Belii’s personal research results the most important aspects of an ERAS protocol. Thus, in the author’s opinion, the quality of postoperative pain management is a particularly important component of “fast-track” surgery, which should rely on the following principles: self-assessment of the pain intensity, pain anticipation and association of painkillers and analgesic techniques. The author also shows that modernization of anesthetic practice shifting to computerized technology of drug delivery (target controlled infusion anesthesia) and new anesthetics provides a better anesthesia management, better adaptation to surgical stress intensity and faster emergence from anesthesia with fewer incidents.

An interesting element of this monograph is the proposed ventilation weaning algorithm for the stage of the emergence from anesthesia. In the future, this could be integrated in the software of recovery room ventilators. Testing of the weaning algorithm proved the possibility of reducing the duration of lung ventilation by 40% in the patients that emerge from anesthesia. Other original ideas proposed by the author are the terms “static” and “dynamic element” related with postoperative management. “*Static element*” is called a treatment which does not modify in a fast and significant way biological parameters of a patient and usually has a supportive or preventive role. In contrast, “*dynamic element*” is called a treatment that rapidly and significantly influences biological parameters of a patient, hence adequate monitoring of vital signs is mandatory.

The second part of the monograph refers to cross-cutting issues, indispensable for modern perioperative care. It refers to risk management modules and healthcare quality assurance, information flow and decision making mechanisms, optimization of the operating suite schedule in a hospital and last but not least, to economic aspects of ERAS programs.

In conclusion, I would like to mention that Mr. Adrian Belii’s monograph “Accelerated Postoperative Rehabilitation: the Aeronautic Model” is an original and scientifically valuable paper which I recommend to anyone interested.

References

1. Kehlet H. Multimodal approach to control post-operative pathophysiology and rehabilitation. *Br. J. Anesth.* 1997;78:606-617.
2. Belii A. Reabilitarea postoperatorie accelerata: modelul aeronautic. Monografie. Chişinau: Combinatul Poligrafic, 2007;168.

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During the European Congress of Anesthesiology (“Euroanesthesia 2008”, Copenhagen, Denmark) I received this book on the “Aeronautic Model” for multimodal perioperative rehabilitation. I think this is an impressive work to promote fast-track in Moldova and covering each of the important components. Personally, I am grateful and impressed by this work and hope it will be useful to spread this concept in Moldova in the interest of surgical patients to recover earlier and with less morbidity.

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