PROPOSAL TO ESTABLISH A EUROPEAN QUALIFICATION OF COMPETENCE IN TRAUMA AND NON-TRAUMA EMERGENCY SURGERY

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INTRODUCTION

In most European countries, a progressive focus on planned activities at the expense of the urgent, has undermined the ability of surgeons in general to intervene in emergency situations outside their area of specialization. This is even more important when governments and institutions maintain medical missions in distant destinations, in theaters marked by underdevelopment, political instability or even war. To bring emergency surgical care into line with the modern world, it is essential to redesign our training curricula.

This proposal is intended to enable surgeons and residents in the surgical specialties to acquire essential basic skills through a training program based on traineeships and internationally recognized courses, with the aim of bridging gaps arising from a generalized trend towards early specialization.

A first step has already been taken in Europe within Intensive Care and Emergency Medicine. It is now proposed, based on a specific training program that is complementary to that of the existing specialties, to create a European qualification of competence in trauma and non-trauma emergency surgery.

RATIONALE

The evolution of surgery has been marked by advances that have indelibly changed its practice. Laparoscopic surgery and, more recently, endoluminal surgery, endovascular surgery and robotic surgery have imposed a substantial technological leap forward, allowing the realization of increasingly complex procedures, with less invasive approaches, forcing changes to training curricula.

At the same time, the expansion in knowledge of the pathophysiology and natural history of some diseases has broadened the criteria for surgical intervention, introducing procedures that were unimaginable a few years ago. This requires the surgeon to acquire new skills, (if necessary by means of simulation), new knowledge and to keep constantly updated with regard to indications for interventions and preoperative evaluation of patients with these conditions, making it difficult if not impossible, to maintain high levels of current scientific knowledge and technical skills in all areas of elective surgery.

Linked to this, in recent years there has been tremendous progress in perioperative intensive care. On one hand this has made it possible to maintain and support the vital functions of numerous surgical patients, particularly victims of severe trauma. However, it has also created new survivors and a number of new challenges such as the prevention and treatment of multiple organ failure and the abdominal compartment syndrome.

While in elective surgical practice increasing sub-specialization is possible and even desirable, in the surgical treatment of the critically ill patient and, in particular, the severely traumatized, such a situation may not be feasible. Often these patients have multiple lesions in different anatomical regions, any one of which may be fatal. In addition, these patients have serious compromises in their physiology by phenomena such as hemorrhage or sepsis. Indeed, under these circumstances it is not possible, or even desirable, to adopt a traditional surgical approach, that is to say based on organs.

An approach is therefore required which, above all, prioritizes the timely return of physiology, often using non-conventional surgical maneuvers, as is the case with damage control surgery. These techniques differ from those commonly used in elective surgery because they are not, in most cases, definitive procedures. By solving the immediate life-threatening problems, they allow the transfer of the patient to the intensive care unit to facilitate the recovery of systemic disorders. An example is the patient with severe intra-abdominal bleeding in which an abbreviated laparotomy will prevent the onset of the often irreversible triad of acidosis, hypothermia and coagulopathy. The definitive anatomical repair is performed only after physiological recovery of the patient. However, while allowing many patients to recover from injuries that would otherwise be fatal, these techniques have also created new problems such as those posed by delayed abdominal closure.

In addition, particularly in the traumatized patient, the multiplicity of injuries often requires the use of various specialties not always immediately available. In these circumstances, it is necessary for someone to take the helm, assigning priorities and leading the interventions. Such a role can only fit a surgeon with recognized competence in appropriate decision making and in performing the range of the emergency procedures required.

It is in this context that there is a need to establish a process of specific training, complementary to the existing training programs (which are based on various anatomical areas and surgical specialties), enabling a surgeon to handle various emergency situations, such as acute abdomen in its multiple etiologies; cervical, thoracic, abdominal and pelvic injuries; necrotizing infections of the skin and soft tissue, and compartment syndromes.

CURRICULAR PROGRAM

The training model, instead of being centred on a particular organ or system or a particular disease, needs to put emphasis on the ability to identify, prioritise and resolve potentially lethal acute situations in different anatomical areas such as neck, chest, abdomen, pelvis or limbs. While recognizing the difficulty that this represents, it is obvious that only specific periods of training will enable it. These training periods should complement basic surgical training. To this extent, initial

training modules should be based on the existing programs for partial traineeships that residents of the various surgical specialties already carry out in related areas.

This study program should enable the acquisition of a wide range of skills, not only in terms of surgical technique, but also in the clinical sense, of decision-making and scientific knowledge with regard to major acute pathophysiological themes, such as shock and sepsis, and the initial approach to the patient with severe trauma or other acute life-threatening disease. The procedures considered to be essential in each anatomical area should be the minimal technical skills required, such as obtaining a surgical airway; the approach to cervical, thoracic or severe abdominal injuries; the external stabilization of pelvic fractures; some vascular surgical procedures for the extremities; debridements and amputations. The emphasis should be placed not on the ability to perform all definite procedures in each of these areas, but rather to ensure, with temporary surgical procedures in a damage control perspective, stabilization and subsequent transfer of the patient to a more specialized level of care.

In addition effective involvement in the postoperative course of these patients will be essential, in intensive or intermediate care units, as full interlocutors of the therapeutic plan, with updated scientific knowledge in areas such as hemotherapy, nutrition and infection control. Finally, the candidate must prove capable of coordinating a multidisciplinary team.

In the United States, the surgical panorama already includes this type of training, together with subspecialties such as Vascular Surgery, Colorectal Surgery and Transplant Surgery. Acute Care Surgery was recently created from the existing Trauma Surgery program, with its scope not only the surgical treatment of traumatized but also the surgical critically ill patient with non-traumatic pathology [1,2]. For practical reasons and without prejudice to the necessary adaptations to the European realities, we believe that this model should be adopted as a working basis. In this respect, our proposal for a study program regarding traineeships, courses and the technical capacities that they should provide is summarized in the attached Tables (1 and 2).

A similar proposal was presented in Portugal in March 2012 [3] but still awaits approval by the Portuguese Medical Association, evidence of the resistance always faced by a project aimed at changing the status quo.

Thus, with the approval of this proposal by ESTES, it will be important to move for the creation of a new board within the European Union of Medical Specialists (EUMS / UEMS).

Coimbra, 2014-06-17

The Coordinator,

Carlos Mesquita

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1 Britt LD, Trunkey DD, Feliciano DV. *Acute care surgery: principles and practice.* Springer, New York (2007)

2 David B. Hoyt DB, Kim HD, Barrios C. *Acute Care Surgery: A New Training and Practice Model in the United States.* World J Surg (2008) 32:1630–1635

3 Mesquita C, Ferreira F, Melo RB, Pereira J, Pinheiro LF, Mendes M, Coelho T, Figueiredo AJ, Figueiredo AL, Farias JP. *Working Group for the Training in Emergency Surgery.* Portuguese Medical Association, Coimbra (2012)

TABLE 1: TRAINEESHIPS AND COURSES [4]

1. TRAUMA AND SURGICAL INTENSIVE CARE	**06 months**
▪ Participation in Trauma Teams	03 (or 520 hours)
▪ Pre and postoperative treatment of complex surgical conditions, in high dependency care setting	03
2. ELECTIVE AND EMERGENCY SURGERY	**18 months**
▪ General Surgery	06
▪ Cardiothoracic Surgery	02 (1/3)
▪ Angiology and Vascular Surgery	02 (1/3)
▪ Orthopedics	02 (1/3)
▪ Optional: Transplantation Surgery (including harvesting of abdominal and thoracic organs), Gastrointestinal endoscopy, Interventional Radiology, Pediatric Surgery, Plastic Surgery and Burns, Neurosurgery, Urology, Gynecology and Obstetrics and others, or maximization of time in nuclear traineeships	06 (4/8)
3. COURSES:	
• **Advanced Life Support** (ALS, ERC) or equivalent	**Essential**
• **Advanced Trauma Life Support** (ATLS, ACS) or equivalent	**Essential**
• **Fundamental Critical Care Support** (FCCS, SCCM) or equivalent	**Desirable**
• **Definitive Surgical Trauma Care** (DSTC, DSTS, IATSIC) or equivalent	**Essential**
• **Emergency Surgery Course** (ESC, ESTES) or equivalent	**Desirable**
• **Modular Ultrasound ESTES Course** (MUSEC, ESTES) or equivalent	**Essential**

[4] Should constitute initial standards the existing training programs in related areas for residents of the various surgical specialties and the courses listed in this table. However, bearing in mind that the reason for the frequency of both is the acquisition of specific skills, it is assumed that if they are obtained by other means, including accredited simulation environment, the frequency of the corresponding stages or courses can be dispensed.

TABLE 2: ACQUISITION OF TECHNICAL COMPETENCES [5]

ANATOMICAL AREA / PROCEDURE	ESSENTIAL	DESIRABLE
1. AIRWAY		
▪ Nasal and oral endotracheal (including rapid sequence) intubation	X	
▪ Cricothyroidotomy, open and percutaneous	X	
▪ Tracheostomy, open and percutaneous	X	
2. SKULL / FACE		
▪ ICP monitoring	X	
▪ Trepanation / Craniotomy	X	
▪ Nasal packing	X	
3. NECK		
▪ Approach and control of vascular and aerodigestive lesions	X	
4. THORAX		
▪ Damage control techniques, eg aortic clamping	X	
▪ Approach and control of cardiac lesions and cardiac tamponade	X	
▪ Approach and control of vascular lesions	X	
▪ Approach and control of aortic injuries in blunt trauma		X
▪ Approach and control of tracheobronchial and pulmonary lesions	X	
▪ Surgical treatment of infections and empyema	X	
▪ Surgical treatment of diaphragmatic injuries	X	
▪ Bronchoscopy: diagnostic and therapeutic		X
▪ Approach and control of esophageal lesions	X	
▪ Video-assisted surgery in relation to the procedures performed		X

[5] The technical capabilities herein should preferably be obtained in a clinical context. However, simulation training in an accredited environment, if plausible, can be an alternative.

TABLE 2: ACQUISITION OF TECHNICAL COMPETENCES (continuation)

ANATOMICAL AREA / PROCEDURE	ESSENTIAL	DESIRABLE
5. ABDOMEN AND PELVIS		
▪ Damage control techniques (including pelvic stabilization)	X	
▪ Approach and control of vascular lesions	X	
▪ Approach and control of digestive tract and attached organs lesions	X	
▪ Approach and control of kidneys and urinary tract	X	
▪ Approach and control of female genital lesions (including pregnancy)	X	
▪ Approach and control of abdominal sepsis	X	
▪ Treatment of necrotizing soft tissue lesions	X	
▪ Approach and control of abdominal compartment syndrome	X	
▪ Techniques for abdominal wall reconstruction	X	
▪ Video-assisted surgery in relation to the procedures performed		X
6. EXTREMITIES		
▪ Imobilization of fractures and dislocations and application of tractions and external fixators	X	
▪ On-table angiography		X
▪ Approach and control of vascular lesions	X	
▪ Thromboembolectomies	X	
▪ Vascular access techniques in context of Extra Corporeal Life Support		X
▪ Fasciotomies	X	
▪ Treatment of necrotizing soft tissue lesions	X	
▪ Amputations	X	
7. OTHERS		
▪ Plastics and skin grafts (including burns)	X	
▪ Hypothermia treatment techniques		X
▪ Upper and lower gastrointestinal endoscopy		X
▪ Diagnostic Ultrasonography	X	
▪ Therapeutic Ultrasonography		X