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## Integral and comprehensive education of anesthesiologists

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With the dynamics of the vertiginous progress of knowledge, it is necessary to reflect on education and professional practice, with the aim that they be up-to-date and pertinent.

The title of this essay is “integral and comprehensive education of anesthesiologist.” To elaborate about this complex concept we will begin with some general questions, academic concepts and referents. For instance, what is anesthesia? What is anesthesiology? What is an anesthesiologist and how can he/she succeed in attaining a comprehensive education in a conscious manner?

We can say that anesthesia causes the loss of consciousness and pain while conserving homeostasis. Some people use the term [anesthesia] in a colloquial way to refer to the practice of the discipline.

Anesthesiology is a concrete branch of medicine that comprises:

- Medical and physiological evaluation of the patient
- Evaluation of preoperative problems and preparation for the surgical intervention
- Pharmacology and physiology of anesthetics and analgesics
- Feasible therapeutic actions needed to produce the anesthetic status
- Administration of adjuvant drugs to facilitate transoperative care
- Prevention of physiologic alterations during the perioperative period
- Replacement of liquids and electrolytes
- Knowledge about critical medicine and intensive care
- Inhalotherapy
- Pain treatment during perioperative period

An anesthesiologist should be educated to be able to identify the necessary components from basic sciences, clinical and instrumental fields and to have the knowledge, criteria, dexterity and skills to perform in an outstanding manner in his area. The anesthesiologist should have clear knowledge about morphology, physiology, biochemistry and pharmacology.

Anesthesiology can be addressed from three different perspectives:

**Discipline:** Anesthesiology is a body of ordered and systematized knowledge, which is endorsed historically and enriched by current research studies. These components constitute the disciplinary referent that should be universal. From this reference point, it is possible to define what every anesthesiologist in the world should know.

**Medical specialty:** Anesthesiology is a medical specialty, defined by academic plans and programs, that educational institutions offer in collaboration with the public health care sector.

**Institutional reference points:** This encompasses both educational institutions and the areas of the health care sector that train anesthesiologists in Mexico.

These three perspectives imprint peculiar characteristics on Mexican anesthesiologists and their elements have local-regional characteristics that emphasize the commitment and responsibility of these professionals in their working environment. In this sense, it is possible to formulate some key questions; for instance, what features should institutions highlight? What do academic programs offer? What is at the core of practice and the development of these programs?

Anesthesiology as a profession addresses the practice that a specialist carries out independently or in a hospital. The

professional's referent is the body of norms that guide the anesthesiologist's performance or the deontological elements coming from the professional guild. This comprises professional competence, colleges, councils, societies and federations of anesthesia.

The professional referent should be based in national guidelines, which means that knowledge and skills should be developed according to Mexican norms and should be appropriate for the type of patients that are in our country.

After these considerations, it is appropriate to establish that anesthesiology has multiple dimensions, as described below. Following Gonzalez and Gonzalez's (1994) assumptions, in principle anesthesiology fits among the humanistic sciences, since incorporates elements from biology, sociology, economics and human sciences that cannot be separated from professional practice.

Anesthesiologists have to take into consideration historical and traditional/cultural situations; for instance, some religious traditions do not allow certain medical interventions, or some patients may prefer the variety of oriental practices that exist to treat pain. With regard to technological development, there are numerous innovations. Without a doubt, it is as important to know how to manage a patient as it is to have current information about all the technological advancements that can assist us in improving our performance (there are many examples). Nevertheless, we must be prepared to take care of the patient, regardless of the situations in which technology will be unavailable.

Philosophy is important for the anesthesiologist, particularly in relation to morals and ethics. Both must be present at all times. Anesthesiologists are required to behave in a manner that follows ethical principles:

- Do no harm, look for the maximum benefit and the minimum risk to the patient
- Provide equitable care to all patients
- Respect the autonomy of patients
- Respect the dignity of patients
- Respect cultural, moral and religious principles
- Respect confidentiality and professional secrecy
- Communicate and inform
- Provide care in an opportune manner
- Have complete answers [to patients' question] and all clinical information they need
- Avoid improper language
- Behave with integrity
- Behave honestly

In their ideological, political, economic and social milieu, what do public institutions offer in terms of anesthesia postgraduate courses in relation to policy and what is the commitment of such institutions to develop such courses?

Between public and private institutions, is there equal responsibility and care for the patient?

These are the characteristics of comprehensive, integral education for the anesthesiologist, which highlight the kind of commitment that this professional should to society and to teaching and learning activities that he carries out while training residents within the hospital.

From theoretical and methodological perspectives, the training of anesthesia residents should contain a range of content from basic sciences to medical knowledge, in such a way that they will be prepared for their future work and will be capable of confronting any situation. They must be able to work in major cities of Mexico in hospitals with state of the art technology, but also in distant regions with scarce resources. The anesthesiologist must be able to deal with all kinds of situations; therefore, continuous updating and education is mandatory.

What, then, is comprehensive integral education? It is a complex concept that has several dimensions and elements. The point of departure is the aim of anesthetic care, which is to improve the quality of life of the patient. What kind of information and education do anesthesiologists require? What are the knowledge, attitudes and skills that anesthesiologists need to possess?

In the field of teaching, what is their academic responsibility, in terms of information and education? The tutor that educates a novice has the responsibility of providing comprehensive integral education, which will be passed on to following generations.

The development of activities, critical thinking, creativity and knowledge generation must be encouraged. The anesthesiologist can provide care to patients, but if he can gather information, learn, observe and analyze data, then he also will be able to generate new knowledge derived from practice, which will contribute to academic production. The anesthesiologist can provide knowledge with a social conscience. The advancement of anesthetic concepts, along with progress in knowledge to treat pain, has run parallel with surgical progress. We left behind most myths of the past century.

Concerning professional efficiency, the guild must transform with two meta-intentions: social transformation and technological independence. Linkages with professionals from other fields, medical specialists from other areas, biochemists, molecular biologists, physicists, and bio-medical engineers can bring along innovations, which we should search for. The technology cannot only be produced abroad; why not be produced here?

Comprehensive integral education is a human attitude. Praxis involves a conscious process of creation. It is not enough to have twenty diplomas. During professional growth, it is advisable to keep in mind history, academic

concepts and development. The anesthesiologist has a long-life contract; he is a professional that should be congruent in ideological and ethical terms; should have updated information and comprehensive integral development, and permanent complex commitments. This can be an overwhelming idea for an anesthesiologist, who can choose for do nothing more than his daily practice. However, once the anesthesiologist learns his role within the medical field, establishing a permanent commitment to personal growth is of the utmost importance.

He must know what makes him competitive and certifiable; training and the development of capabilities to solve problems correspond to professional development. At this point, it is relevant to review and update study plans, which is the responsibility of teaching hospitals where courses are provided. Its obligation is to have resources, medications, equipment and educational activities available.

For what is the anesthesiologist trained? What type of attitude is he learning? How can he analyze information to

address a problem? How can he propose new approaches to tackle daily problems? The anesthesiologist will have to engage in proper communication, not only within his environment, but with other professionals, promote team work and transcend.

We have to take into account the "Me" of the anesthesiologist, referring to his harmonious component. Besides his capabilities, limitations and his ethical and moral principles, he is a person that thinks and feels. He must be all right; his self-esteem should be high, resulting in a healthy person. That means a person that has self-acceptance, self-responsibility, that is assertive, positive and acts with integrity and, most importantly, that can transcend.

For the above mentioned reasons, it is very important that educators of future anesthesiologists, either professors, associate professors or anesthesiologists affiliated with the hospital, work together in such a way that our fellow residents become anesthesiologists who are able to transcend.

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