Bioethics, technical and scientific progress in medicine
- an educational point of view -

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Abstract: The main problem of medicine in XXI\textsuperscript{st} century is how to manage the scientific and technical knowledge, the conflict of interest about using the new technology or drugs even if they are not enough tested and in the same time to help people and to maintain the humanist face of medical professional. In that context it becomes more and more important to “create” a new health professional: with a lot of knowledge but with a ethical behaviour and with empathy for suffering people, capable not only to help people using the system but also to fight the system and improve it.

Key Words: ethics, progress, health, education

1. Introduction

In this paper we try to analyse how scientific and technical progress could influence the ethical curricula, according to the students’ needs and expectation.

It becomes more important for health practitioner in XXI\textsuperscript{st} century to store new and old knowledge because it “seems to me also to be a ’folie a deux’: doctors want to believe that they know more than they do both because it feels good and because ’knowledge is power’; and the public like the idea that doctors will cure them or keep them from death.” [18]

Van Rensselaer Potter consider that: “My bioethics has always been defined as an attempt to combine biological science and knowledge from the humanities, stressing that ethics cannot be separated from biological facts” [10]

We knew now that during the time the health practitioner, like other people, develop “black” or “white” moral attitude, because, as Norka said “People are capable of both enormous altruism and enormous greed - a fact that we ignore at our peril.” [9]

The main goal of medical bioethics connected with the progress in scientific and technical field is not only to improve the quality of physical and psycho-sociological life of patients, but also to help the health professional to resolve the moral and ethical dilemmas which appear in medical practice.

Countries with different level of using telemedicine or robots in medicine could have a different approach of teaching this kind of topics, but we think that this could be important not only for countries that use frequently the medical devices or develop medical research and introduce the new drugs in medicine, but also for countries that could use this resources in the future.

In that way Romania is a good example, because the teachers design the curriculum according both to their experience and with students expectance.

2. Medical education - objectives

For most of the people, medicine is a lifebuoy when they or their relatives have health problems, but we knew now that “Medicine will become increasingly predictive, personalized, and pre-emptive, requiring the participation of all players in the biomedical community”. [9]

Medical education must have some general objective, like in figure 1, and the ethical value and curricula developed according to them must assure to achieve this objectives / target.
Designing the medical curriculum and trying to find a way for achieving the objective of medical education means in the same time to understand which are the curriculum objectives, as Ainsworth says: “Curriculum objectives can be designed to match the way physicians encounter problems and preserve a generalist's perspective in patient care, yet allow appropriate emphasis of core content.” [1]

One of the most important objectives of the medical education is to develop the future health professional to recognize and accept limitation of their knowledge and skills; this is the first step not only for improving their capacity to treat patients, but to develop prevention activities and all in a moral, ethical way.

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Figure 2.

3. Opportunities in teaching ethics related with the scientific and technological progress

In our days the medical ethics, developed after the World War II, become more and more involved in medical education not only in the medical curricula but also in other subjects like history of medicine, human behaviour and also in clinical or pre-clinical studies.

It is not possible now to learn about genetics, microbiology, surgery, psychiatry or research methodology without evaluate the ethical problems developed in each fields.

After developing biotechnology, involving informatics and engineering in medicine, using robots and telemedicine the roles of medical ethics increase and it appears more and more important to evaluate the conflict between technical and human medicine. It is the role of ethics not only to evaluate, but also to moderate this conflict. [2, 4, 7, 8, 13]

In that context, developing the ethical courses is also important and relevant for the health professional development, as Glick mention: “I am prejudiced against a single, defined course in bioethics during medical school as the only exposure in teaching, no matter at what stage it is given. Such a formal, one-time course encourages the attitude: 'I have finished ethics, now let us continue with the real world'. The message that we must convey is that bioethical dilemmas are a ubiquitous part of the physician's professional life and should be an integral part of all medical training. Therefore, I favour a substantial amount of 'injection' teaching of bioethical subjects, each in the particular medical context.” [6]

Even if bioethics was used to analyze the major public policies and to evaluate the governmental regulations, now is viewed more as a way to influence individual attitudes, as part of collective behaviour.

Hippocratic Oath and Physician's Oath – Geneva Declaration are well known and influence the individual attitude during the time, so it is not unexpected the new way of using bioethics topics for modelling (influence) the individual behaviour in education.

More and more bioethics is an international discipline and it involved people (teachers, students, health professionals) from all over the word.

4. Bioethics and progress topics – a necessity topic in curricula

Scientific and technical progress or medical research draw a lot of questions and assure a high interest of the topic not only for physicians, but also for engineer, nurse, pharmacist and psychologist.

The development of sciences offers new opportunities but also brings a lot of ethical dilemma according to the quickly implement of the new development into practice, without recourse to doubt and could influence the student and professional behaviour [11, 12]

Establishing a ethics view and analyze of implementing what is new in science and technique it could be the only effective barrier for un-moral attitude and a good opportunity to evaluate the correlation between price and profit.

Both medical progress that can ensure the replacement of natural reproduction by laboratory methods, resuscitation and advanced technology and legislation concerning euthanasia can modify the ethical rules generally accepted (unacceptable even with half a century ago).

In that context is important to avoid the possibility to dehumanize medicine and to educate the student in a moral, ethical way.

Bioethics induces new goals for health professional, patients, relatives or clients; all of them must contribute to the respect the individual autonomy, the patient empowerment and constitute the fundamental values of civilized way of life.
5. Bioethics and progress – a student perception

It is very interesting to realize what the students’ opinions are according to ethical dilemma. As Singer mention “Many medical students and physicians resent the unbalanced, highly theoretical approach taken in some traditional teaching programmes in medical ethics (this is not necessarily characteristic of the UK curriculum). Performance based approaches are increasingly seen as crucial for the advancement of medical education, and this is no less true for teaching medical ethics. A particular challenge is to develop reliable and valid measures for evaluating performance, such as evaluation reports for medical ethics during training” [17]

The objective of teaching medical ethics is to help students to apply a moral attitude in their everyday practice, when they must take a clinical decision or a political decision in a health system.

As Doyal says “We have no doubt ourselves that the interests of medical students, the medical profession, patients, and the community at large converge in urging stiff resistance to any attempts to reduce what the consensus group sees as the minimal content of a core curriculum for medical education in medical ethics and law” [5]

Fortunately, there are a fairly large number of articles and books that deal with ethical issues and some of them can be found on the Internet.

Also the development of centres for bioethics, such as: Hastings Centre, The Joseph and Rose Kennedy Institute for the Study of Human Reproduction and Bioethics, Centre for Population Research, Center for Human Bioethics, Instituto Borja de Bioética, Centre for Bioethics and Public Policy or the occurrence of internet data bases like Bibliographic Information Services online, Bioethicsline provide a strong development of Bioethics and draw attention of the academic world to this fields.

For elaborate an ethical curricula we think that is very important to realize what is the student perception. In this study we illustrate the attitude of students towards in vitro fertilization, to understand better their perceptions in placing scientific and technical progress in their daily activities and to use this attitude to design few studies cases for the practical discussion.

The study is a preliminary one including the students in the same study year. For the future we want to extend the study group and compare the results.

The study group comprises of 45 students with a minimum of 26 and a maximum of 56 years. The study was realised in 2008 –2009, with uniform training. The students were asked to answer to 22 questions.

According to this graphic (Graphic 1) only a reduce number of students are disagreed with using fertilization, which let us to conclude that they agreed with this kind of technique.

Most of the students think that they are able to participate in the act of fertilization in vitro. (Graphic 2)

What is encouraging is that most students consider that the main obstacle to the acceptance or not to perform in vitro fertilization technique must be ethical. The answer may be related to the question “Do you believe that vitro fertilization is acceptable?”. The majority answered yes, if made at the request of the patient (Graphic 3).

According to these three graphics we can conclude that the most student agree with fertilization and in that way it becomes important to establish a set of theoretical cases about this kind of ethical dilemmas and analyzes with the student.

We also like to mention that the students have the
same positive perception about using technologies in other studies made, about e-Health, telemedicine, robots, etc. [3, 14, 15, 16]

Using their experience we think that the main topics related to scientific and technical progress are: (figure 3)

According with our experience teaching ethics for medical, pharmacy or nursing students have a lot of advantages like in figure 4.

Technologies became that immense force, ideals and value systems which influence human activity in society. It becomes obvious that technical and scientific progress must be approach in an ethical way, not only at the practical or clinical level but also at academic level.

8. Conclusion

The challenge everywhere is how to design a good curriculum and also how to involve students and use the best pedagogical tools for help the future practitioner to become a real professional with high moral standards.

To be competitive in medicine is in the same time to be a moral person, with rational and coping attitude, with a set a moral values as large as the medical knowledge.

The ethical curriculum must be designed based not only on moral attitude or level of knowledge but also by history lesson; the most important thought is not to repeat the “black” ethical period.

For the next year it becomes important to:
- legitimate the ethics like a compulsory subject for all health professional (medicine, nursing, pharmacy, dentistry) or for professional connected with that: psychotherapist, melo-therapist, art-therapist, and so one
- even bioethics is a very recent sub-field of normative philosophical ethics all the researcher in ethic filed must contribute in design the proper subjects and used the proper methods for teach the students
- transform bioethics in a valid discipline with its own subject, method and experts, including in the interdisciplinary fields.
- develop and testing the methods used for teaching ethics and integrate the mosaic of theory and principal used at the academic level
- developing a core of experts in ethics medicine, based on the people who have an important medical and cultural background

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