Improving the education in the field of patient autonomy in rehabilitation doctors working with engineers

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Abstract. The present study analyzes the use of bioethical expertise of Romanian rehabilitation doctors working in a hospital for engineering professionals, the Romanian Railways Clinical Hospital Iasi. The knowledge of the specific legislation by the medical personnel, proper communication, shared decision making and the use of informed consent are essential for effective healthcare provided to engineers, a group of professionals with a great contribution to the development of rehabilitation robotics and medical technology.

1 Introduction

Rehabilitation is a medical field in which engineering plays an important role. It is used for devices, wheelchairs and prostheses that replace functional abilities. Robots have begun to be used in physical therapy for repetitive and straining tasks that are usually performed by the therapist [1]. Conversely, in engineering, a profession in which physical requirements are sometimes minimal, including mostly planning, designing, modeling, analyzing, rehabilitation was successful in disabled patients with stroke and spinal cord injury who return to work [2].

However, to reduce the high prevalence of musculoskeletal diseases in the sedentary work of engineers, these professionals should be instructed by the rehabilitation doctors on how to activate their lumbar muscles through breaks for walking and alternating office work with activities in standing position, since ergonomic chairs are not effective as long as the sitting position itself causes the atrophy of lumbar muscles [3].

In this way, engineers could assume a more active role in their healthcare. Therefore, the aim of our study was to investigate to what extent Romanian doctors are ready to establish a relationship that respects the bioethical principle of patient's autonomy, i.e. the patient right to confidentiality, privacy, truth-telling, access to essential medical assistance, but also the right to make autonomous decisions about healthcare, including the right to refuse treatment and to have access to a correct informed consent [4-5].

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In order to assess this bioethical principle in a population of engineers, we have conducted our study mainly at the Romanian Railways Clinical Hospital Iasi. The knowledge of the specific legislation by the medical personnel, proper communication, shared decision making and the use of informed consent are essential for effective healthcare provided to engineers, a group of professionals whose scientific innovations in medicine were remarkable: the development of X-rays, cardiac catheterization, angiography, prosthetic devices, artificial organs and nanomaterials used in tissue engineering, nuclear medicine, diagnostic ultrasound, implantable drug delivery systems, computers for monitoring patients in intensive care units, computed tomography, magnetic resonance imaging, positron emission tomography, implantable defibrillators, stents, neuronal pacing systems, the study of the genome, engineering of stem cells [6].

Respecting patient’s autonomy may be a little more challenging in medical rehabilitation, considering some specific aspects that may impact the patient’s decisions regarding their health care and overall can impair their degree of autonomy. In this matter, in rehabilitation clinics, patients relate to a multidisciplinary team, not to a single doctor, frequently suffer from physical limitation, chronic pain and can have a chronic course of the illness. Also, patients in rehabilitation services are vulnerable to develop depression and anxiety. A study done in this matter found that among patients that came for chronic treatment in a rheumatology clinic, almost half of them were also suffering from depression or anxiety [4].

The considerable duration of the recovery process encourages the development of a close relationship between the doctor and the patient, the therapeutic relation being the foundation of the medical rehabilitation [5]. The present study intends to analysis the view of Romanian doctors in regard to the doctor-patient relationship with focus on autonomy of the patients in medical rehabilitation units. The main aspects followed in our study are referring to the knowledge on the specific legislation by the medical personnel, correct communication with the patient, involvement of the patient in the medical decision and also aspects concerning informed consent.

2 Material and methods

2.1 Sample group

The study group included 50 doctors selected from Iasi (located in North-East Romania) and was conducted during October 2014 – December 2015. The group surveyed comprised 20 doctors from the Rehabilitation Clinic of the Railway University Hospital Iasi, 10 doctors from the Rehabilitation Hospital Iasi and 20 doctors that work in private clinics. 48 doctors are specialized in medical rehabilitation, and 2 doctors are surgeons. All personnel that was implicated had to sign copyrights forms as well as other agreements in order for the authors to be able to publish the results.

Table 1. Characteristics of the sample group.

Characteristics	Sex (F)	Age group (30-39 years)	Marital status (M)	Medical experience (>20 years)	Individual medical practices	Field of rehabilitation medicine
N	44	20	28	7	27	48
Percent	88	40	56	14	54	96

2.2 Survey

All the subjects responded to a survey composed of questions that concern basic aspects related to doctor-patient relation such as communication and giving information to the patient, being informed of medical legislative framework or patient’s involvement in making decisions regarding medical acts, but also aspects regarding informed consent.

2.3 Statistical analysis

The data were centralized in SPSS 18.0 data bases and statistically analyzed by using the T Student test; $p < 0.05$ was considered as statistically significant.

3 Results

3.1 Socio-demographic data

Analyzing the *gender* in the study group revealed a predominance of the female gender (88%), with a sex ratio of 7.3/1 female/male. Regarding *age groups*, a frequency peak was recorded at the 30-39 age group (40%).The distribution of doctors according to their *marital status* shows a slightly higher percentage of married individuals (56%).

3.2 Medical practice data

Type of medical practice was evaluated and revealed that 54% of the doctors surveyed conduct their activity in individual medical practices, 10% of the subjects being involved in both systems, state and private. Regarding *medical experience*, 50% of the surveyed doctors have less than 5 years of working experience in the medical system and only 14% have over 20 years of experience. In conjunction with the socio-demographic elements, the duration of the medical working experience longer than 20 years was observed more frequently in female doctors ($p=0.06$), with ages over 50 ($p=0.001$) and married ($p=0.131$).

3.3 Legislative framework

On the group surveyed it can be noticed that, in general, there is a partial knowledge (52%) or lack of knowledge (8%) of the legislative framework that regulates medical activity, with only 40% of the doctors being informed (16%) or fully informed (24%) regarding this aspect. The legislative framework is significantly frequently known by doctors younger than 50 ($p=0.032$).

Fig 1. Structure of study group according to knowledge of legislative framework.

3.4 Self-assessment of communication with patients

All the doctors surveyed evaluate their communication with patients as good (40%) and very good (60%). A very good self-assessment of communication with patients was recorded more frequently among female doctors (87.5%; $p=0.725$), with ages under 50 (72.7%; $p=0.086$), married (66.7%; $p=0.123$). While only 88% of the doctors surveyed evaluated the quality of their medical activity as high and very high, but all of them claim they have a good and very good communication with patients.

3.5 Patient involvement in making decisions regarding medical investigations and treatment

The doctors surveyed reported patient involvement in making decisions regarding investigations and treatment as follows: 20% in all situations and 56% in majority of situations. Patient involvement does not present significantly different percentages in relation to the socio-demographic characteristics of the doctors ($p>0.05$).

Fig 2. Structure of sample group in relation to patient’s involvement in making decisions regarding medical acts.

3.6 Information regarded as confidential

Among the types of information obtained by doctors the most frequently regarded as confidential are personal data (80%), patient diagnostic and result of investigations (68%) as well as prognosis for the condition (64%). Approximately half of the doctors surveyed (52%) consider the state of the patient confidential. The types of information regarded as confidential were significantly more frequent in the answers of doctors with ages under 50 ($p<0.05$).

Fig 3. Structure of sample group in relation to the information regarded as confidential.

3.7 Transmitting information about patients

Doctors reported that they transmit information about the patient to law enforcement (84%) or in situations in which the patient consents to this (88%). The information considered confidential, under the conditions of patient consent, is transmitted by 99.5% of the female doctors ($p=0.001$), with ages under 50 (84.1%; $p=0.042$) and married (50%; $p=0.028$). When family caregivers require, information about patients is offered significantly more frequently by young doctors (62.5%; $p=0.009$) and married doctors (62.5%; $p=0.024$). Transmitting information about patients to law enforcement is more frequently performed by doctors with ages under 50 (81%; $p=0.034$).

3.8 Components of informed consent used in medical practice

Most commonly, patients are informed in connection to the risks of treatment and existent alternatives, description of treatment and its effects. The components of informed consent most commonly used in medical practice by the subjects surveyed were informing the patient about the purpose of medical investigations (96%) and informing them about the cost of treatment and the necessity for connected care (88%). In relation to the socio-demographic characteristics of the doctors surveyed, with only one exception, no significantly different percentages were noticed, the components of the informed consent are used more frequently by females, with ages under 50, married ($p>0.05$).

Fig 4. Structure of sample group in relation to the components of informed consent used in medical practice.

4 Discussion

The principle of autonomy requires encouraging the patients to participate in taking medical decisions regarding their own healthcare. It is known that empowering the patient to assume a more active role in taking medical decisions may improve the doctor-patient relation and ultimate may bring an improvement in the therapeutic act. The principle of autonomy has to be sustained by the medical personnel through a deep respect of the ethical values and a good understanding of bioethical principles and legislation that protects the patient [7].

In our study we found that generally there are gaps in information regarding the knowledge of the legislative framework under which medical care is practiced. The majority of the individuals surveyed responded that are partially or uninformed in this matter. Also, the lack of knowledge regarding medical legislation may have an overall negative impact on the quality of the medical act. These findings encourage improving awareness and education in medical legislation in the Romanian healthcare system.

Efficient communication with patients is the foundation of a good therapeutic relation and a key element in empowering the patient to be actively involved in medical decision [8]. It is known that failing to communicate with the patient may decrease the patient compliance and have a negative outcome in the medical response [9].

Most commonly, patients in our study were found to be informed about the purpose of medical investigations and also about the cost of treatment and the necessity for additional care. The rehabilitation medicine faces some specific difficulties comparing to other fields of medicine including the unpredictable character of the disease evolution, treatment efficiency, but also the disability risk, reason for which the discussions with the patient should be periodically resumed.

Another important aspect that strengthens the doctor-patient relation is respecting the confidentiality of the information about the patient. Violating confidential information may have both ethics but also legal consequences [10]. In rehabilitation, the medical act implies obtaining a great amount of private or intimate information, by means of physically examining the patient, through anamnesis and medical analyses. Sharing information with other people should happen only with patient consent or in situations in which breaking of law is detected.

5 Conclusions

Improving performance of the medical rehabilitation team can be also achieved by increasing the medical personnel's awareness on the bioethical aspects of medical practice, which concern patient autonomy, ensuring wellbeing, doing-no-harm and equity.

The doctors from Iasi who participated in this study generally know the legislative framework, inform patients about the evolution of disease, consult them regarding the application and cost of treatment and respect the confidentiality of patient information. On the other hand, our study highlights a general deficit of information regarding medical legislation and also a decreased involvement of the patients in their healthcare decisions.

We consider that it is necessary to clearly establish the role of the medical rehabilitation team, so that the involvement in the rehabilitation medical act is conducted for the patient's benefit and in compliance to the ethical and legal framework. In conclusion, our study draw attention on the necessity to improve knowledge concerning legislative framework and bioethical norms especially in rehabilitation services and patients to be fully informed and encouraged to take decisions in order to improve the quality of the medical care in Romania.

References

1. S. Xie, *Advanced Robotics for Medical Rehabilitation. Current State of the Art and Recent Advances* (Springer, Cham, 2016)
2. L. Smith, *Workplace Health Saf.* **64**,84-88 (2016)
3. F. Mörl, I. Bradl, *J Electromyogr. Kinesiol.* **23**,362-368 (2013)
4. R. Chadwick, *Encyclopaedia of Applied Ethics Vol. 3 (M-R)*. (Elsevier, Amsterdam, 2012)
5. V.A. Entwistle, S.M. Carter, A. Cribb, K. McCaffery, *J.Gen.Intern.Med.* **25**, 741-74 (2010)
6. J.D. Bronzino, D.R. Peterson, *Medical Devices and Human Engineering* (CRC Press, Boca Raton, 2015)
7. Law no 46 of 21 January 2003 regarding patient rights. Official Monitor no 51 of 29January2003. URL: <http://legislatie.just.ro/Public/DetaliiDocument/41483>
8. J. Fong Ha, N. Longnecker, Ochsner J. **10**, 38-43 (2010)
9. L. Kourkouta, I.V. Papathanasiou, *Mater Sociomed.* **26**, 65-67 (2014)
10. K. Blightman, S.E. Griffiths, C. Danbury, *Contin Educ Anaesth Crit Care Pain.* **14**, 52-56 (2014)