



Review Articles

Cadaver procurement for anatomy teaching: legislative challenges in a transition-related environment

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Abstract

Background: Human gross anatomy is one of the cornerstones of a medical curriculum and cannot be performed without adequate cadaver procurement, which is a particular challenge for medical schools with a large student enrolment. The authors present the situation in a country with a low public awareness for willed body donor programmes and the prior absence of adequate legislation.

Aim: Against this background, a comprehensive proposition of a whole-body procurement procedure was elaborated in the health-care law.

Resolving the problem: The main goals of the proposition were: (a) identification of options for cadaver procurement (body bequeathal programme, unclaimed bodies and body donated with the permission of the next-of-kin); (b) defining the chain of order and responsibility of institutions in informing the medical school of the possible candidate for body procurement; (c) body storage and related procedures; (e) confidentiality of the deceased's personal data; (f) burial procedure of the deceased's remains.

Conclusions: The authors are convinced that the willed programme for whole body donation is a definite step of

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neuroanatomy for the different levels of education: undergraduate, graduate, postgraduate and specialist training.¹⁻³ The development and introduction of computerized imaging models in anatomy has been a valuable complement, but not a substitute for the education, based on the fact that cadavers provide a wider range of perceptions, both haptic (hardness, size, shape, borders) and visual (depth, texture, relations). Approximately two-thirds of human bodies are used for educational purposes, and one-third for research.⁴ Acquiring human bodies for dissectional purposes has never been an easy task. The challenges and obstacles that have to be faced in this delicate matter are based on diversities: legal, constitutional, cultural, religious, sociological, economic and educational.^{1,5,6}

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The University of Belgrade School of Medicine was the largest medical school in the former Yugoslavia, as it still is in today's Serbia. It enrolls between 400 and 500 students each year, which places a maximal strain on the subjects in the first year of the curriculum. This is particularly true for anatomy, as it has the largest quota of training lessons. If one adds the increasing number of postgraduate courses and courses for specialists' training, it is understandable why providing the cadavers and organs for teaching purposes has been identified as one of the major organizational problems for medical schools during the past decades.

The aim of this paper is to present the background of the acute problem of providing bodies for medical education and research in Serbia, the results of a multilevel search for legal experiences and sustainable solutions on this matter, and a view on future perspectives in terms of good pedagogic practice.

> **History**

Fortunately, this section will not begin with the ancient 'body snatching' experiences, because the first medical school in Serbia was established after World War I. The first legal data on body procurement for the institutes of anatomy in Serbia date from 1921, when a 'Bylaw of the Ministry of Health' and a 'Review of the Sanitary Legislation' regulated this procedure in detail.² The procurement was based on those deceased persons whose burial had to be carried out at the expense of the state or the municipality because the relatives refused to claim the body. These bylaws supplied data on the exclusion criteria (post-mortem changes, infectious diseases and forensic examination), latency periods for body take-over and anatomical procedures, as well as the protocol for transport and final burial of the remains. In less than 10 months, the Institute for Anatomy in Belgrade was supplied with 100 human corpses, which gave steady ground for teaching and research purposes.

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In the 1950s and 1960s, the body bequeathal programme was encouraged. The prerequisite for this donation was full mental sanity and legal responsibility of the donor. The signed and certified statements of whole-body donation were presented in duplicate samples, one for the donor and his family and the other for the Institute. At the realization of the donorship, these two copies were aggregated in the donor's file, together with the report of the Coroner, for future legal insight. The foreseen procedures included also a dignified memorial ceremony for burial of the remains at a special allotment of the city cemetery.

Unfortunately, these proceedings and practice were not based on a punctual and comprehensive legislation, but rather on concise and generalized enactments, bylaws and recommendations, from the different levels of establishment (health, education and municipal regulation), all based on a single sentence from the Law on

Health Protection, Article 84a: 'Human body and parts of the deceased's body can be acquired for teaching at the faculties of health provenance, but only with the consent of his family and if the deceased person was not opposed to that during life'. This clumsy formulation, instead of aiding, actually hindered the process.

The late 1980s and, especially, the 1990s in some southeast European countries brought serious problems in a wide range of social relations. The aforementioned procedures of body procurement for educational purposes became imperilled, among much else, because of the legislative vacuum. Further, the level of general social awareness, attitude and intentions decreased along with the economy and standards of life. The armed conflicts and the displacement of large portions of the population had an additional negative influence, and the body bequeathal programme shared the unhappy fate of organ donation for transplantation procedures,⁸ facing almost complete cessation. The disproportion between the number of students and the available cadaveric specimens in Serbia grossly endangered the quality of education at the medical schools, which called for prompt action.

> Resolving the legal aspects

Every good analysis has three parts: insight into the present situation, projection of the desired status and defining measures on how to reach this status. At first sight, the obvious problem was the absence of a legal framework and responsibilities concerning the matter of cadaver procurement. We easily identified the subjects potentially involved in this matter: government departments for health, education and internal affairs, local municipalities, municipal registries, penitentiary institutions, health-care institutions (including retirement homes for the elderly), coroners' offices and social welfare officials. The next step was to make the decision whether to modify and improve the existing legislation, or to suggest completely new and up-to-date legal arrangements. As the public procedure on creating the new law on health protection was already in action, we resolved on the latter.

This was an enduring and arduous assignment, with continuous balancing required between desires and possibilities. The most valuable help was given by the Deanery of the School of Medicine, and the Faculty of Law, University of Belgrade. Finally, the result was a proposal which was adopted as Chapter XI – *Procurement of the bodies of the deceased persons for the purpose of practical medical education*, Articles 225 through 233, Law on Health Protection, and is now in full legal competence.⁹

The first part of the chapter (Article 225) identified three options for cadaver procurement: body bequeathal programme, deceased persons without relatives or deceased persons whose relatives gave permission for body donation. The first item constitutes a body donation consent and it has to include the name of the executor of the person's will and must have been legally verified in Court. An important exclusion criterion was also adopted for the latter two items – if the person during his/her lifetime gave an explicit refusal to body donation. With regard to these two options, the relatives were defined in Article 226. The following persons are considered as family: spouse (married or live-in), children born within or out of wedlock, adopted or adoptees, legal guardians, parents, relatives in second lineage regardless of the consanguinity, as well as lateral relatives, including the third lineage of the consanguinity.

Secondly, Article 227 of the chapter listed all the organizations, institutions and individuals legally responsible to report the death of a body donor candidate, according to the aforementioned conditions – health-care units, penitentiaries, welfare institutions, local courts, local police departments and/or citizens. This information is to be

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transferred promptly, within 12 hours of the affirmed time of death, to the local municipal authorities in charge of registries, so that the medical school can organize conveyance of the donor's body. The prerequisite for acquisition of the body is a signed death certificate by the official coroner, without requirements for further forensic expertise. According to this Article, the ethical committee of the medical school is responsible for supervision of each and every step in cadaver procurement, anatomical procedure and burial.

There are two exclusion criteria for body acceptance by the medical school: infectious diseases and progressive post-mortem changes. In a potential case of a deceased individual without any known relatives (Article 228), the medical school will refrain from utilizing the body for practical education for six months after death. If, during that specified period, a relative of the deceased should contact the medical school and claim the body, the school is bound to return it (Article 230).

All the data, personal or medical, and the documents concerning the deceased person must be permanently and confidentially kept by the medical school, with the only access possible being to the authorities from the departments of health, education, internal affairs and local municipal authorities (Article 231). The body of the deceased has to be labelled with an identification tag matching the number in his record, throughout the whole period. As regard to the personal data, it needs to be explained that in principle only a natural person (human being, in jurisprudence) is entitled to personal data protection.¹⁰ In spite of this, the reverence and respect to the deceased and to the relatives requires consideration of strict measures to keep complete confidentiality.

The cadaver can be used for practical education only within the premises of the medical school, for undergraduate, postgraduate and specialist training, all under supervision of the anatomy teaching personnel (Article 232). The body can later be used for assembling the skeleton or forming plastination specimens, but only if such was a bequest of the body donor.

After the practical teaching process, the school of medicine organizes a dignified funeral ceremony, announced in the appropriate obituary section in the media. Members of the school teaching staff and students of the school are invited to hold an honorary tribute to the deceased. An appropriate religious service will be provided, in concordance to the last wishes of the donor (Article 233).

> Discussion

The cadavers and the various body parts are used for a wide variety of purposes: transplantation, isolating and extracting hormones, research, instructing medical personnel and, last but not least, dissection for medical students. The viewpoints and controversies related to this delicate matter are legal, ethical and emotional.¹¹

In a recent study,³ it has been noted that certain population groups have a low willingness for whole-body donation. Sociodemographic factors such as race, ethnicity and education have a large influence on considering body donation, particularly in the setting of concern for discrimination in the hospitals. In Serbia, however, such a study has never been carried out. From the empirical point of view, one must say that, although discrimination in health care is also a repulsive factor in this country, the low willingness for body bequeathal had a clear link with the abrupt decrease in the standard of living and the feeling of uncertainty for the future.

Another issue in solving the problem with body procurement is its perplexed relationship with transplantation. It is worth noting that acquiring small samples of human tissue has a much lesser reaction in the sociocultural

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environment, in comparison to organ and whole-body procurement.⁶ From the moral point of view, harvesting viable tissues and organs has an undeniable priority over cadaver procurement for the medical schools. However, transplant donors are on average at least 20–30 years younger than typical whole-body donors are, and the general public is unaware of this fact.¹¹ Such a misapprehension has surely played an additional role in low response to body donations in Serbia, and should be regarded as an important factor in the publicity campaign.

One of the fundamental questions is the nature of the property of the human body,⁵ i.e. the right to alienate a part or the whole body. A generally accepted moral standard is that the right to sell is strictly prohibited. The major breakthrough in this vicious circle was the introduction of the Uniform Anatomical Gift Act, drafted by the National Conference of Commissioners on Uniform State Laws in the USA. This state law, established in 1968 and revised in 1987 and in 2006,¹² drastically reduced the shortage of bodies and organs in medicine, and served as a legislation template worldwide.

The basic point for any legislative framework concerning body procurement for anatomy departments is the source of human bodies. A report from the end of the last millennium stated that 60% of the cadavers were acquired through the body bequeathal programme, 35% were donated by the next-of-kin and 5% were unclaimed individuals.⁴ We have included all three options for the opening article of the Serbian law. Although the willed body bequeathal programmes nowadays grossly predominate in whole-body procurement, the practice of using unclaimed bodies still exists in a number of countries, at least as an additional source.^{4,5,13–15} This practice has been based on the 'presumed consent' system, which presumes that the decedent has consented to the harvest of his/hers organs unless an objection to such a harvest has been recorded. Further, such a body is unclaimed by a relative or other legal representative, and otherwise would be required to be buried at public expense.¹⁵ We have implemented all these experiences in the proposition of the legislation, very precisely defining the extent of the terms 'relative' or 'legal representative'. We have also defined the latency period during which unclaimed bodies will be withheld from anatomical dissection, and subject to possible claim and identification by previously unknown but authenticated relatives. Some legislations give a very short time limit of 24 hours (the 1999 Portuguese Decree-Law No. 274/99) or up to 30 days,¹⁶ but we have extended this period up to six months, as those claims are frequently linked to property inheritance claims.

From the ethical point of view, one can contest the option of using unclaimed bodies for teaching anatomy, because of the absence of willed donation. On the other hand, what would be the option in the objective shortage of human bodies? Or, how ethical would it be for, e.g. surgeons to obtain their expert skills and research different approaches to procedures solely on living patients, putting them at risk? If we confront these two ethical dilemmas, the answer is clear.

In France the legislation on body donation for anatomical purposes, presented in Chapter 3, Section 2 of the Civil Code,¹⁷ contains some interesting clauses. For example – the testamentary disposition of body donation must be presented in hand-writing, health and research establishments cannot refuse donations nor can their families override the wishes of the donor after death. With the exception of the matter of unclaimed bodies, the Serbian Law on Health Protection uses the same postulates: donor card for body donation, provision of medicolegal (forensic) release for body acquisition, obliged information for the municipal registrar for the deceased and the limited period for body transportation to the anatomy department.

Body donations in Germany are also based on willed bequests, with a well-organized donor policy and a high rate of bequeathals. Among much else, the legislation underlines the importance of respecting the donor's specific wishes for a funeral which is in concordance with the Serbian articles. However, there are some specificities

concerning the costs and charges. In Germany, the donors' families used to be entitled to a substantial transitional allowance, the so-called 'death benefit', in the form of a welfare allowance. However, the financial cutbacks in the statutory health insurance scheme¹⁸ have abolished this subsidiary, resulting in a major impact on research and teaching budgets of departments and universities, so that even some of the bequests have been rejected. The Serbian legislature does not stipulate such an allowance for the family, but, in return, the schools of medicine which accept donated bodies are obliged to cover all the charges of body transportation, storage and funeral, including commemorative services.

In the UK, there was a legislative shift from the old Anatomy Act to the new Human Tissue Act, which is now in force.¹⁹ Informed consent is now mandatory. Should a disagreement within the deceased's family occur, there is a hierarchy of qualifying relationships ranked with regard to provision of consent. In such a manner the priority of wishes can be determined. Based on this experience, and, bearing in mind that family ties have a particular impact on social relationships in southeast Europe, our law proposal precisely defined the members of the family, according to their lineage of consanguinity or eventual adoptees. The UK legislation extensively elaborates on the storage and disposal of human material.²⁰ With the possibility of malpractice as a continuous threat,^{21,22} we have underlined that the complete educational process on the cadaver must be undergone within the anatomy department of the medical school, supervised by the ethical committee. This is complementary with the storage and confidentiality of the deceased's data.

In the majority of medical schools there is a tradition of holding memorial burial and committal services, in appreciation of the generous and valuable body donations. We have included this ceremony in the body text of the law, extended by an appreciation of procedural and religious wishes of the deceased. For educational and moral purposes, the memorial ceremony has to be attended by the students and the professors of the medical school.

The Serbian Law on health protection, which has been in force since 2006, is intended to contribute to an increase in whole body procurement for anatomy teaching. However, as legislation is a 'necessary, but not sufficient' condition, other circumstances have to follow, namely global social, economic and educational stability and progress.

> **Conclusions**

Long-term experience with body and organ procurement for educational purposes and research has led to the conclusion that one crucial contribution to solving this problem lies in a precise, capacious and unambiguous legal framework, created under the auspices of all the relevant institutions and with the aid of expert lawyers. This framework should be comprehensive enough to ensure a reliable relationship between donors and the schools of medicine, waving off any doubt of malpractice or unethical conduct. Therefore it is essential to closely observe the motives, expectations and wishes of the potential donors.

The authors strongly support the willed programme for whole-body donation as a definite aim of such legislation, including obtaining informed consent, personal data confidentiality, clear designation of anatomical procedures, interring the remains and commemorative services. On the other hand, in the transition-related countries, such as Serbia, the objective general awareness of the problem of body bequeathal for anatomy has proven to be very

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low. Therefore, major efforts must be invested in a public campaign to encourage willed body donation, but in the meantime the acquisition of unclaimed bodies remains as a temporary solution, so that the teaching process is not imperilled. We consider our legislative framework as being able to serve this delicate purpose.

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