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RESEARCH ARTICLE

DONATION OF WHOLE BODIES FOR ANATOMY TEACHING: SOCIAL CONSCIOUSNESS, WILLINGNESS AND PRACTICES IN SENEGAL

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ABSTRACT

While in developed countries the body donation is an old tradition in medical schools, in Africa it is a real socio-cultural problem. Our work proposes to do the assessment of this practice that remains controversial in sub-Saharan region. Historically, dissection and prosection are preferred for teaching gross anatomy and for research. Although the advent of new technologies has created innovative opportunities to explore the anatomy of the human body, the body donation remains essential in our context. However, in Senegal this practice is disturbed by legal, constitutional, cultural, religious, sociological and economic obstacles. The most relevant contribution is the establishment of a clear and precise legislative framework with the help of medical institutions, and the help of experts in law. Moreover, even if the use of unclaimed bodies is a temporary solution, it is important to raise awareness of the interests of the voluntary donation of human body.

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INTRODUCTION

For centuries, the dissection of the human body anatomy has always been an important point in the training curriculum for medical students and for specialists. Cadaveric dissection has also often served as a rite of passage to introduce medical students in their future profession (Cundiff *et al.*, 2001; Lenart *et al.*, 2003), and to make them think about the meaning of death (Figure 1). Entering a dissection laboratory is one of the most memorable experiences for medical students, offering them the opportunity to develop a passion for anatomy, and to embrace a career in connection with the anatomy such as radiology or surgery (O'Carroll *et al.*, 2002). Thus, body donation programs are beneficial for training and medical research at all levels. However, such programs do not exist in sub-Saharan Africa for many reasons. Through this review, the authors discuss barriers to the practice of body donation in Senegal.

The inevitable anatomical dissection

The need for an adequate and continuous supply of bodies is fundamental in the organization of medical studies. It is essential to the teaching of gross anatomy and neuroanatomy,

whatever the level of study: bachelor, master, PhD, post-doctorate and specialization. Exclusion or reduction of cadaveric dissections in the medical curriculum is antithetical to the training of competent and patients-concerned practitioners. Indeed, the teaching of anatomy on cadaver provides to students a wider range of perception, both haptic (firmness, size, shape, limits) and visual (depth, texture, reports) (Manyacka Ma Nyemb *et al.*, 2014). Dissection of cadavers allows the three-dimensional understanding of the anatomical structures of the body in an interactive way for students. It also allows highlighting the primacy of the patient, the medical language learning, learning teamwork, preparation for medical specialties, and the development of spatial reasoning skills necessary for understanding and interpretation of medical imaging (Aziz *et al.*, 2002; Collins *et al.*, 2008). Despite the multiple interests in science, acquiring whole bodies for the purpose of anatomical dissection remains a difficult task in Senegal. The obstacles are legal, constitutional, cultural, religious, sociological, and economic (Manyacka Ma Nyemb *et al.*, 2014).

Is there a legislative framework to give his body?

Concerning the donation, the fundamental question is the nature of the property of the human body. This means the right to dispose of some part or all of his body? Progress has been made by the "Uniform Anatomical Gift Act," written by the

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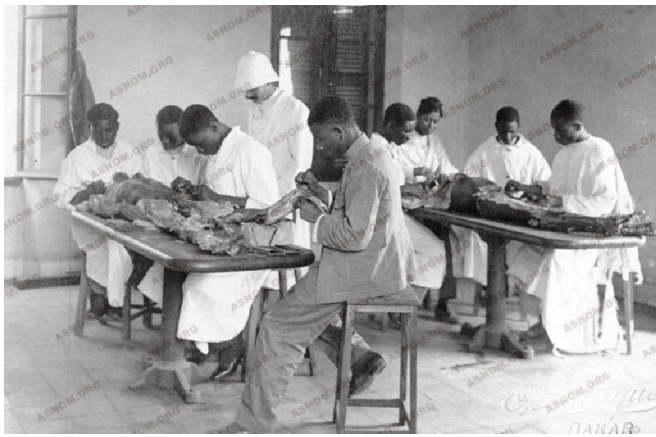


Figure 1. Practicals of anatomy, Dakar 1923. Reproduced with permission of the Association « Amicale Santé Navale et d'Outre Mer » (ASNOM).

Source : http://www.asnom.org/oh/fr/0140_presentation.php

"National Conference of Commissioner on Uniform State Laws" in the United States of America. This state law established in 1968 and revised in 1987 and in 2006 (DeVita *et al.*, 2006) reduced the deficiency of organs and whole bodies for anatomical dissection. This law served as model legislation all over the world. In France, the law on body donation for anatomical use presented in Chapter III, Section 2 of the Civil Code contains some interesting clauses (Stimec *et al.*, 2013). Thus, the testamentary evidence of the willingness of body donation must be handwritten, hospitals and research centers cannot refuse donation, and families cannot change the wishes of the donor after his death. However, the legal framework for body donation in France still seems incomplete: the authorization of body donation for scientific purposes should be specified by the legislator (Plaisant *et al.*, 2005). For example the use of abandoned or injured body is empirically practiced in France for centuries with no real legislative basis.

On the african continent, South Africa is still the only country with a legislative framework for body donation. In that country, law gives to each individual the right to dispose of his body for dissection. In Senegal there is a legal vacuum, because the texts contain no provision for the gift of the body. The legislative framework is therefore non-existent. A recent report showed that in Occident 60% of cadavers come from a program of body donation, 35% are given by relatives and 5% are unclaimed bodies (Walker, 1999). In Senegal, all materials used for anatomical dissection are unclaimed bodies. From a purely ethical point of view, one can contest the fact of using unclaimed bodies for teaching anatomy, because in this case the body donation is not voluntary. However in our context, it would be difficult to do without this option without jeopardizing education and research in anatomy, because all of our cadavers are unclaimed bodies.

The ethnoracial factor

McNamara (1999) found that people from a low socio-economic region are less favorable to the gift of the body. In this work carried out within the U.S. population, 3 predictive factors in african-americans are motivating for body donation

to science after death: discussing with his family about the possibility of body donation, being assured that doctors will do everything they can before considering body donation, and being assured that the body will not be disfigured (McNamara *et al.*, 1999). The last factor is easily justified because in populations of african origin, disfigurement is often associated with non-respect of the corpse. These predictive factors can help to orientate the debate on body donation in Senegal and in sub-Saharan Africa.

The work of McNamara (1999) also shows that despite the communicative means used for body donation programs, ethnic minorities remain largely refractory to this practice: only 22% of african-americans want to give their bodies after death. So there are significant differences on body donation across genders and races. For Boulware (2004), these differences are mainly due to religious and cultural reasons. In fact, the factors associated with a refusal to give his body to science are more complex: age, race and ethnicity (subjects belonging to the black community), low financial income, presence of a dependent, status of divorced or widowed, strong religious or spiritual beliefs, as well as the lack of trust in the medical system (Boulware *et al.*, 2002; Halou *et al.*, 2013). Thus, in their efforts to implement a service of body donation, medical schools and public authorities should take into account these factors. In other sub-saharan african countries as Ivory Coast, the population is predominantly against body donation after death (65%). Reasons are mainly cultural and religious (Broalet *et al.*, 2006). Despite the fact that the Catholic Church has recognized since the thirteenth century the cession of the body after death for scientific use. In Senegal, a predominantly muslim country, judicial autopsy dissections are allowed. However, Islam forbids opening corpses, and condemns acts of cession of the body (Durier 1991, the dissection and autopsy until the 19th century, Thesis Medicine, University of Lille).

The strength of traditions

In sub-saharan Africa, the cultural context is not suitable to the donation of bodies. Funeral rites are highly developed in traditional african societies. Most of these rituals are based on a reality: the dead person is gradually detaching himself from the world of the living to become an impersonal ancestor, guarantor of parental and social order (Pradelles De Latour, 1996). In fact, funeral rites are a moment of suspension of everyday life in which death, emotionally unbearable, is gradually transformed into an acceptable symbolic. Death is centered on the otherness of the ancestor who is at the same time the guardian of the relationships of filiation and relationships of alliance. In Senegal, there are many social representations of death. Most of these representations contribute to limit in space and in time, the trauma of losing a loved one (Ndiaye, 2007). Even if death is a well known medical fact (biological death), it is culturally much more difficult to identify. Moreover, according to our traditions, death sometimes takes nonsense, because "deads are not dead." So, funeral rites don't celebrate the end of life, but the transition of the deceased in the afterlife. In his work on funeral rites in several tribes of Senegal, Ndiaye (2007) explains that Wolofs (widespread tribe in Senegal) "don't die". They are somewhere after death, in life. This cultural representation has

implications for the treatment of the body of the deceased. This vision radically opposes to donation and mutilation of bodies.

Conclusion

Many factors can explain the denial of donating his body after death for scientific purpose. Without going against our cultural realities, these factors must be taken into account in advocating for the erection of a body donation center in Senegal. It is also fundamental to raise awareness of human body donation, and to work on a legal framework for this practice.

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