THE MALFUNCTIONS OF A NATIONAL TRANSPLANTATION SYSTEM: MULTI-LAYERED EXPLANATIONS FROM WITHIN

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THE MALFUNCTIONS OF A NATIONAL TRANSPLANTATION SYSTEM: MULTI-LAYERED EXPLANATIONS FROM WITHIN (Abstract): Romania has one of the lowest posthumous organ donation and transplantation rates in Europe. Aim: To explore the perspectives on the national transplantation system deficits shared by the physicians responsible for the identification and referral of potential posthumous organ donors. Material and methods: The study consists of semi-structured interviews with the key informants (ICU physicians, neurologists and neurosurgeons) in county hospitals in Moldavia. Results: The explanations for the current Romanian organ transplantation rate, as emerged from the participants’ answers, are multi-layered. Overall, the national transplantation system is accused of being plagued with serious problems: it is underfunded, understaffed, its resources have been distributed unevenly among medical centers, the communication between its elements is disrupted, leaving the majority of the transplant professionals practically detached from its upper layer and affecting their motivation to perform their transplantation-related tasks. Furthermore, some of the participants point to the strong reluctance of the population to donate their deceased relatives’ organs. Conclusions: The results suggest a set of possible multi-level interventions that could alleviate these problems. Keywords: TRANSPLANTATION, ORGAN SHORTAGE, TRANSPLANT SYSTEM, HEALTH PROFESSIONALS, POPULATION, ROMANIA.

There is a universal shortage of cadaveric organ donors; while the number of patients waiting for transplants continues to increase, organ donation rates remain low. These rates vary widely between countries, Romania ranking near the bottom of the European hierarchy, with 3.6 deceased donors per million of the population in 2009 (1). Only 31% of the Romanians would agree to donate their organs after death and 34% would consent to donate organs of a deceased family member, far below the European means of 55% and 53% respectively (2).

An important factor influencing the posthumous organ donation rates is the refusal of the bereaved families to give consent for donation and the public’s reluctance to donate (3). The attitude of the health professionals towards organ dona-
tion and transplantation, as well as their knowledge on these issues, also influence the decision to donate of the family members (4, 5). Their influence is not limited to the conversation with the family members, but it extends to their own involvement in terms of identification and referral of potential organ donors (6, 7).

In addition, the characteristics of the national transplantation system influence the work of the health professionals involved (8, 9) and, consequently, the number of donated organs. Among others, the technological level of the available medical facilities, the adequacy of personnel training or the degree of articulation between the various levels of the medical system can hinder or stimulate the efficiency of the transplantation system.

The aim of our study was to explore the perspectives of the physicians involved in the identification of potential organ donors on the factors influencing the functioning of the Romanian transplantation system and on the available interventions that could limit the negative influences.

**MATERIAL AND METHODS**

We used a qualitative methodology based on semi-structured interviews with open-ended questions. The participants were physicians of one of the three specializations involved in the diagnosis of brain death (neurology, neurosurgery and ICU) working in hospitals from the Moldavian counties, and responsible for the identification and referral of potential brain death donors. 24 physicians were contacted; 17 agreed to participate (10 men, 7 women): 6 neurologists, 6 neurosurgeons and 5 ICU specialists. The participants’ age ranged from 41 to 57 and their work experience from 3 to 19 years. The interviews lasted about 50 minutes each and were all recorded.

The study was approved by the Research Ethics Commission of the University of Medicine and Pharmacy “Grigore T. Popa”- Iași. All participants were informed about the aim and procedures of the study and freely consented to be enrolled.

The interviews were transcribed verbatim, and analyzed in a grounded theory approach. The interviews were coded using the county name and the medical specialty abbreviation (N- Neurology; NS- Neurosurgery; ICU- Intensive Care Unit). In order to access and explore the essential meanings of the answers, the constant comparative analytic procedure was employed, by first reducing them to concepts through open coding. Then, we explored the associations between the various categories in different parts of the textual data. Each hypothesis that emerged across this coding process was compared to the new statements in participants’ answers, thus assessing its validity. When the meanings of the new statements differed from the previously established relevant hypotheses, the latter were reformulated in order to accommodate them. When the differences were too large, indicating the existence of distinct perspectives on the same issue, the new meanings were theoretically condensed into a new partial hypothesis.

**RESULTS AND DISCUSSION**

**The inner problems of the Romanian transplant system**

The participants pointed out several categories of inner problems, distributed on several layers, from the individual one, the human resources employed in the system, to more general, organizational issues. On the first layer, some of the respondents identified the health professionals’ low
motivation. On one hand, their involvement in the transplant-related interventions is an additional task, interfering with the already busy daily work schedule:

"It is an extra activity and the not so numerous employees already have to cope with a busy schedule. It is natural for interest in such activity, that we consider collateral, to be reduced" (NS1).

Therefore, the level of effort invested in the organ transplant-related tasks is low:

"I think it is also about our lack of involvement" (NS2).

A possible solution to this motivational issue is, for some participants, the financial retribution of their involvement in the transplant-related tasks.

"Those in charge of transplants should be paid more, no doubt about it!" (ICU5)

On the other hand, the low external rewards of the physicians could be compensated by their internal motivation, grounded in the life-giving character of transplantation. The satisfaction stemming from saving the life of the organ recipient can help them rationalize the efforts they had invested in the lost cause of saving the life of the deceased donor:

"We often struggle for patients who we know to have little chance, and we see no solution, but maybe it is then we get a new one, a new meaning...of all the work invested. Despite the end of that particular life, a new one might continue" (ICU2).

This type of approach involves the health professional’s concern for the welfare of the potential organ recipient. Altruism appears to be an important factor for the health professionals’ approach on organ donation (10). However although altruism should be at the heart of the medical profession, its current practical relevance is diminished. This issue would require educational interventions directed to physicians, such as development of campaigns aimed at stimulating their altruistic tendencies as motivators for their involvement in the organ transplant-related tasks:

"I say ‘education’ because we should get involved in this field of activity selflessly, as a result of our belief. In the long run, this is our purpose in medicine, or at least it should be” (ICU1).

Beyond the motivational issues, some physicians point to a systemic dysfunction in the informational circuit between the levels of the Romanian transplant system. Its main consequence is the informational deprivation of the physicians, not only in terms of their scientific update on the relevant medical issues, but also concerning the basic statistics of the outputs of this system:

"Not even us, the doctors, have knowledge of the number of kidney transplants performed in Romania so far, as well as their consequences” (N2).

The limited personal experience of many physicians with organ transplantation-related procedures can influence their attitude towards organ donation and gradually instigate further reticence among this first and essential layer of the Romanian transplant system. Other studies reveal that an important variable in this respect is health professionals’ amount of personal experience with managing and referring brain dead patients (11). On the other hand, even when potential donors are identified in these “lower level hospitals”, the lack of feedback on the successful transplant procedures that are performed elsewhere further induces a sense of futility regarding their efforts. Providing follow-up information on organ recipients could prove an effective intervention in order to raise the
level of support for and involvement in transplantation-related tasks among these health professionals (12).

An explanation for the scarcity of the information transmitted to the lower levels of the system is the traditional, and still ongoing, status of transplant interventions as high-end procedures, reserved to a select group of professionals:

“The specialized literature has not presented this side of the transplant as a real treatment possibility, but more like some sort of performance...reserved to a limited number of doctors, having experience, conditions and so on...even now this topic is still viewed as high performance or excellence in medical practice” (N3).

At present, this situation is perpetuated by the insufficient funding only covering the organ transplant-related expenses of the large medical centers:

“Large centers alone have this possibility. Funds were granted and still just the first layer benefited from technology, money and specialists” (ICU1).

Another consequence of this lack of articulation of the transplant system is the deficient communication between its various levels on current relevant issues:

“I think the most important problem is the lack of communication between ICU and the donation team” (ICU4).

Given the fast-paced nature of the set of procedures required by organ retrieval, these communication issues hinder their success, even causing failures in potential donation cases:

“There was a case here in which everyone stuttered: who’s responsible for transplant, who’s the one doing this, who’s the one doing that... when things were finally clear, it was too late” (NS 1).

The lack of adequate funding is a serious issue, invoked by all our respondents. It affects the performance of the transplant system in two ways. First, it leads to dramatic shortage in the necessary technical equipment, limiting, in some cases, the available transplant-related procedures:

“There is also a deficit concerning the county hospitals equipment, necessary for brain death diagnosis and for maintaining artificial ventilation. They are very scarce in ICU, where the priority is set on the patients with a higher chance of survival.” (NS6).

Second, the insufficient funding creates personnel insufficiency, limiting the tasks that the medical staff can perform and, consequently, their involvement in the transplant-related procedures. Furthermore, these insufficiencies raise ethical challenges regarding organ transplant-related procedures, since they require the exclusive investment of a considerable part of these scarce resources, affecting the medical care offered to the other patients:

“If I have two nurses on my shift, one should see to the special care of the donor, which is highly unlikely, since I wouldn’t know what to do with the other severe patients in the department. This would not be fair to the other patients.” (ICU5)

Subsequently, the cost–benefit analysis of the current situation questions the overall utility of organ transplantation, especially in the hospitals that do not perform actual transplant interventions, but should merely identify potential donors.

Overall, the current under-financing of the medical system as a whole seriously affects the rationality of the transplantation sub-system. The lack of involvement of hospital professionals in the transplant-related tasks appears as a way of defending the functionality of the rest of the system,
focused on providing medical care to the sick, by not deploying it of the already scarce resources:

“If you don’t have the money, you do not perform transplantations. The transplant procedures become possible when the system is fit for it. If you don’t even have the foundation, you can’t perform transplantations, it’s as simple as that” (N2)

Nevertheless, in line with the issue of the uneven distribution of resources, some participants remarked the paradoxical character of the Romanian transplant system, mirroring the entire medical system. This paradox stems from the massive differences not only in funding, but also in specialized education and experience between the two levels of the system: the “closed circle” of the first-layer medical centers and the rest of the hospitals:

“[…], again, this is a reflection of the Romanian medical system, with very competent peaks and the contrasting rest of the medical mass, struggling for survival, due to the lack of personnel, equipment, funds and so on.” (N3).

In order to alleviate these structural problems, the Romanian physicians mostly prescribe top-down interventions: higher financial investments at all the levels of the transplant structure and the increased democratization of the system. Generally, the experience of other countries (9) shows that organizational improvements can increase the efficiency of the transplant system and, ultimately, the organ transplantation rate.

The attitudes of the general population toward organ donation

The reluctance of the general population to consent to organ donation from their deceased next of kin is frequently invoked as a major cause of the shortage of available organs for transplantation in many countries (13). Our participants pinpoint several factors contributing to the public’s reluctance that have been identified by other investigations as predictors of people’s willingness to donate. An important such factor is the lack of information on the topics of brain death and organ transplantation (14), which causes difficulties in explaining the diagnosis of brain death to the bereaved families (15):

“The public’s lack of knowledge concerning transplantation is a frequent difficulty in discussing donation with the potential donors’ families.” (NS5)

The general lack of information is attributed by our respondents to the low involvement of the media in popularizing this topic:

“No kind of lobby for transplants, no mass media popularization, neither scientific, nor in terms of popular medicine have been made.” (N2)

Moreover, the rare media reports of transplantation cases led to the perception of this procedure as an exceptional and unavailable medical option:

“People perceive this kind of procedure simply as an accidental performance.” (N6)

Thus, a possible way to change people’s attitudes toward organ donation is the more frequent media coverage of transplant interventions and organ donation. More extensive media coverage of this topic would alleviate the current “eccentricity” of organ transplantation in the public perception, which, in its turn, would positively influence people’s attitudes. This idea is supported by previous results (16) showing that social advertisement of organ donation increases the occurrences of the organ donation topic in the discussions among fami-
ly members.

Another factor of the frequent reluctance of the Romanians to donate the organs of their next of kin, identified by some of the participants, is their low levels of altruism:

“My kin died, let others die, too! This is simply selfish and absurd!” (N1).

While altruism has long been recognized as an important internal motivator in these circumstances (17), it is usually conceived as a global orientation towards other people in general, close to the notion of ‘humanitarian impulses’ (18). However, the psychological deficit criticized by the health professionals in our sample mainly concerns the Romanians’ ”lack of civic sense” (N2), their lack of interest in the welfare of their peers. This perspective moves the reference point in the definition of altruism from the global level to the strictly national one and suggests that deeper issues in the area of the Romanians’ collective identity could function as deterrents of the public’s willingness to donate. Some of the participants suggested that media should take on a third mission, besides informing and raising awareness of organ donation, that of stimulating people’s general altruism.

“Those more likely to donate have certain pieces of information and an open mind” (ICU2).

Finally, another factor identified by the participants as generating the high organ donation refusal rates in Romanian is the low level of trust that people have in the medical system as a whole. As a result, the relationships between the health professionals and their patients are frequently impaired by the latter’s suspicions regarding some hidden personal interests of the former. Consequently, the requests for the donation of their deceased relative’s organs are met with reluctance:

“The patient coming to the hospital already feels that everybody is a thief and wishes him no good, and those who trust what we know we must do are fewer each day.” (NS5)

Moreover, the physicians working in the smaller hospitals have to deal with yet another type of suspicion, concerning their professional skills. Due to their mistrust in the medical competence of the hospital representatives, many of the relatives of brain dead patients withhold their consent, refusing the disconnection of the artificial life-support systems:

“People don’t really trust us around here, at least not enough to consent to disconnect their kin from the life support system.” (NS6)

Medical mistrust has been confirmed by previous studies as a significant predictor of attitudes towards organ donation (19). Due to its ubiquitous character highlighted by the physicians confronting it, our results suggest that it could dramatically influence the Romanians’ stances on this topic.

CONCLUSIONS

Our study shows that the Romanian transplantation system is plagued with serious problems. It is underfinanced, understaffed, the resources being distributed unevenly among medical centers. The communication between its elements is disrupted, leaving the majority of the physicians practically detached from its upper layer, of those performing actual transplant procedures. Consequently, these physicians’ motivation to involve in the tasks that are reserved for them by this undemocratic state of affairs is affected. At the same time, a clear set of possible interven-
tions at various levels can be inferred. First, organizational changes are mandatory, not only larger financial investments, but also stronger articulation of the various levels of the transplantation system. The latter would mainly entail increasing the communication between its two current levels— the medical centers performing transplant surgeries and those responsible only for the identification and referral of potential donors— as well as narrowing of the gap between them in terms of information, resources and, ultimately, surgical procedures performed. Second, media campaigns are called for in order to fill the public’s massive knowledge gaps on the organ donation and transplantation and to stimulate people’s altruistic perspectives on them. In addition the transplantation system could also benefit from campaigns addressing the health professionals’ intrinsic motivations to involve in transplant-related tasks.

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**PROSPECTIVE ANALYSIS OF 55 CASES OF TUBERCULOSIS MENINGITIS IN NORTH INDIA**

Tuberculosis meningitis (TBM) is a serious public health problem in developing countries as it leads to significant mortality and residual neurological sequelae. Despite being an endemic country for TB, data regarding clinical, radiological and laboratory (biochemical and microbiological) parameters and final outcome of adult TBM patients is sparse in India. Analysis of such variables in various countries has shown association of various factors with the prognosis of the disease like age, stage of disease, level of consciousness, presence of extraneural TB, isolation of *Mycobacterium tuberculosis* from CSF, biochemical studies and hydrocephalus. The availability of such data in a high developing country may help in prediction of the prognosis of such patients and help in early intervention of preventive measures to improve the subsequent outcome of the patients. In conclusion, TBM is a serious extrapulmonary form of TB and should arise suspicion in mind of clinician based on clinical, laboratory and radiologic results. The present work was planned to frame a model for prediction of mortality in TBM cases by including variables of age>40 years, past history of tuberculosis (TB), presence of basal exudates and hydrocephalus (Kaur H, Sharma K, Modi M, et al. Prospective Analysis of 55 Cases of Tuberculosis Meningitis in North India. Journal of Clinical and Diagnostic Research. 2015, Vol-9(1): 15-19).

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