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Research Article

Barriers to Organ Donation from Physicians: A National Survey

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Abstract

Introduction: Organ shortage is a major international public health problem. The physicians managing the announcement of brain death and the search for non-opposition to organ donation could be a key to solve it. The aim of this study is to bring out and to identify the potential barriers to organ donation in the young physicians in France.

Material and Methods: This was a national cross-sectional survey based on an anonymous online 23-questions self-questionnaire which was sent to young physicians practicing specialities directly involved in organ donation in France. People were surveyed about their characteristics, knowledge and attitudes towards organ donation.

Results: From 23th January 2017 to 23th March 2017, a total of 170 respondents answered the questionnaire, of which 74.7% (n = 127) were residents and 18.7% (n = 32) were senior physicians. Among the three main specialities represented, 56.5% (n = 96) were Intensivists, 22.4% (n = 38) Nephrologists and 16.5% (n = 28) Surgeons Urologists. 8.2% (n = 14) were against the principle of presumed consent and 4.2% (n = 7) were not themselves organ donors, including 4 Intensivists. The reasons for this refusal were religious for 2 of them, related to bad professional experience for 4 others and the attribution of the organs not enough transparent for another. 67.6% (n = 115) participants said they feared conflict with families and 26.5% (n = 45) even thought that the family should not be involved in the decision to donate organs. 22.4% (n = 38) thought that it was legal to take organs from a patient who was opposed to this idea during his lifetime if his family wanted it. 81% (n = 155) of the participants were interested by an event on the topic of the organ donation.

Conclusions: This study has identified many factors as bad professional experiences and insufficient knowledge about the existing laws potentially responsible for limiting the number of donors in young doctors - specialists directly involved in organ donation. Better information on donation, harvesting and transplantation, as well as family management training, could limit these factors.

Keywords: *Organ Donation Barriers Physicians Future*

Introduction

The shortage of organs is a major international public health problem. In the world, 119,873 solid organs reported to be transplanted in 2014 which still represents inferior or equal to 10% of global needs [1]. It constitutes a major goal of World Health Organization (WHO). Thus, a lot of money and investments are made to improve the donation. Yet, many barriers still limit the organ donation such as origins, beliefs and education in the general population [2,3]. Even the numerous information campaigns to promote organ donation, the rate of opposition to organ donation still remains around 33,6% in France [4]. This important opposition is a lot more than others countries such

as Spain for example [5]. The physicians managing the announcement of brain death and the search for non-opposition to organ donation could be a key to solve it. But among the medical students and young physicians, there is a substantial lack of data which represents a potential way to improve the organ donation management. Indeed, their own motivation could interfere the accuracy of the management of such difficult situations. To date no published data is available in France.

Aim of the Study

The aim of this study is to bring out and to identify the potential barriers to organ donation in the young physicians in France.

Methods

We conducted a prospective cross-sectional questionnaire-based survey. A multidisciplinary group of study was made up by young physicians practicing specialities directly involved in organ donation in France. The group elaborated a questionnaire to collect the pertinent informations from the young physicians about three major topics among 23 questions (Supplementary materials): their characteristics (level, speciality, age, sex, city of exercise), their knowledge (awareness of the recent release of a new decree on organ donation with its issues, if they estimate that they have had full information, if they ever witnessed transplantation, knowledge about contra indications, refusal modes) and their opinion towards organ donation (opinion on the principle of presumed consent, concern about conflict situations or resentment with families, if they think that the family should be involved in the decision of organ donation, if they were organ donor themselves, their religious current and the influence on the choice, agreement with the donation of organs for a member of their family, if they encourage people around them to be potentially donor). The questionnaire was completed with their willing of participation or learning day on this topic. The questionnaire was tested by another group of physicians. The form is available in supplementary materials. The questionnaire was approved and registered with the National Commission of Informatics and Liberties under the reference 2030028v0. The questionnaire is available in the supplementary materials.

The questionnaire was sent to young French physicians practicing specialities directly involved in organ donation through the websites and by e-mails through a nationwide network (n = 445) and on the French Young Anaesthesiologists and Intensivists' Association (AJAR) website (www.ajar-online.fr) comprising on a voluntary basis of AJAR (Association of Young Anaesthesiologists-Intensivists) and SFT Juniors (Junior Commission of the French Transplantation Society). The specialities concerned were the Intensivists, Nephrologists and Surgeons Urologists. We sent follow-up e-mails after 1 month and on social networks. Data were collected between January 2017 and March 2017. We took to assess the correlation with other indicators of general attitude towards organ donation. The results were subject to statistical analysis, in which the arithmetic mean and standard deviation were calculated for measurable properties, whereas quantity and percentage distribution was calculated for non-measurable ones. The Student t test was used to compare the selected groups regarding measurable properties, and the Chi-2 test for independence, regarding the qualitative ones. All tests of hypothesis were 2-sided and conducted at significance level 0.05. A multivariate logistic regression was finally fitted to the data to ascertain which characteristics were independently associated with the main endpoint. Only the statistically significant characteristics ($p<0.05$) were included in the final model. For an analysis of regional variations, we compared the different cities. Odds ratios (OR) with 95% confidence intervals were calculated. Analyses were performed using R (3.4.1 version). A multiple imputation was done if missing data exceeded 10%.

Results

From 23th January 2017 to 23th March 2017, a total of 170 respondents (37.8%) answered the questionnaire. Among the responders, 74.7% (n = 127) were residents and 18.7% (n = 32) were clinic managers or specialist assistants. Responders were mainly intensivists 56.5% (n = 96), 22.4% (n = 38) were Nephrologists and 16.5% (n = 28) were Surgeons Urologists. 75.4% (n = 126) has already assisted to a PMO and 79.0% (n = 132) has already assisted to a transplantation. None questionnaire was excluded. There were no missing data. No imputation was needed. The characteristics of responders are presented in table 1.

Variables	n (%)
Total	170
Status (%)	
Resident	127 (74.7)
Clinic managers/specialist assistants	32 (18.7)
Others	6 (3.5)
Medical student	3 (1.8)
Nurse	2 (1.2)
Age (mean (sd))	28.13 (2.98)
Sex = Female (%)	95 (55.9)
Speciality (%)	
Intensivist	96 (56.5)
Nephrologist	38 (22.4)
Surgeon urologist	28 (16.5)
Others	6 (3.5)
Pediatrician	1 (0.6)
Lung specialist	1 (0.6)
Has already assisted at an organ donation procedure (%)	126 (75.4)
Has already assisted at a surgical transplantation (%)	132 (79.0)

Table 1: *Characteristics of the participants.*

Opinion on organ donation

8.2% (n = 14) were against the principle of presumed consent and 4.2% (n = 7) were not themselves organ donors, including 4 Intensivists. The reasons for this refusal were religious for 2 of them, related to bad professional experience for 4 others and the attribution of the organs not enough transparent for another. The religions of the participants are represented on figure 1. Otherwise 67.6% (n = 115) participants said they feared conflict with families and 26.5% (n = 45) even thought that the family should not be involved in the decision to donate organs. 22.4% (n = 38) thought it would be legal to harvest organs from a patient who was opposed in his lifetime to this idea if his family so desired, which is in contradiction with current French laws.

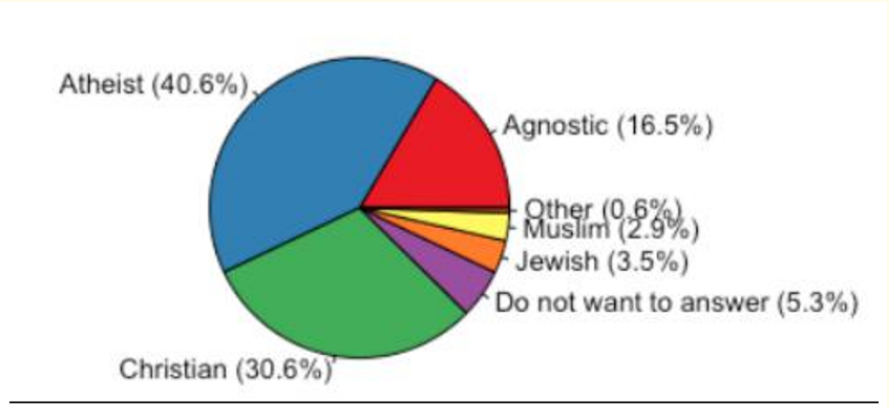

Figure 1: *Pie of religion distribution.*

Knowledge about the new decree

88.2% (n = 150) of the participants were aware of the recent release of the new decree, but 82.4% (n = 140) felt that they had received incomplete information about its content and 72.4% (n = 123) felt that the recent communication plan of the ABM was insufficient. 51.2% (n = 87) of the participants felt that the impact of the new decree on the number of donors was uncertain. 22.4% (n = 38) thought that it was legal to take organs from a patient who was opposed to this idea during his lifetime if his family wanted it. 22.4% (n = 38) thought it would be legal to harvest organs from a patient who was opposed in his lifetime to this idea if his family so desired, which is in contradiction with current French laws. The opinion of the participants on the new decree is presented in table 2.

Variables	n (%)
Aware of the new decree (%)	150 (88.2)
Think that information to medical staff is sufficient (%)	30 (17.6)
Think that communication to public is sufficient (%)	47 (27.6)
Think that it is legal to take organs from an opposite patient during his lifetime (%)	38 (22.4)
Think that the decree will not increase the number of organ donors (%)	87 (51.2)

Table 2: *Opinion of the participants on the new decree.*

Univariate analysis

The people against the presumed consent were significantly less able to promote organ donation ($p < 0.001$). To not promote organ donation was not significantly associated with the sex ($p = 0.647$), the status ($p = 0.458$), the age ($p = 0.848$), the speciality ($p = 0.140$) or the religion ($p = 0.199$) of the responders. The univariate analysis is represented in table 3. Not enough participants were available for a multivariate analysis.

Variables	n (%)
Against the presumed consent of organ donor (%)	14 (8.2)
Concerned about conflict situations with families (%)	115 (67.6)
Think that the family should not be involved in the decision of organ donation (%)	125 (73.5)
Not organ donor themselves (%)	7 (4.2)
Causes of unwillingness to be organ donor (%)	
Professional experience	3 (42.8)
Religion	2 (28.6)
Personal experience	1 (14.3)
Rules of organ allocation	1 (14.3)
Agree with the donation of organs for a member of close family (%)	160 (95.8)
Promoting people around you to be potentially donor (%)	149 (89.2)
Interested in a teaching event dedicated to organ donation (%)	155 (91.2)

Table 3: *Opinion of the participants on organ donation.*

Discussion

Our study is the first national and French study including young physicians practicing specialities directly involved in organ donation in France. Although the population surveyed was quite aware of transplantation (most of them has already assisted to a PMO or a

transplantation), a certain amount of young physicians was against the principle of donation presumed consent and did not agree for their own organ donation. The reasons for this refusal were not significantly related to the characteristics of the participants but could be more related to a misunderstanding or a bad professional/personal experience. The study was adapted for French legislation and French medical system in particular the management of organ donation. In France, Intensivists are Anaesthesiologists-Intensivists or an organ specialist who is doing a specialisation in intensive care. The donation is managing by them for the announce of brain death or cardiac arrest death then the research of non-opposition to organ donation with the optional help of a coordination team. Indeed, in France, organ donation is based on presumed consent. Looking for non-opposition to organ donation should be anticipated and noticed to not loss potential donor. If the physicians do not think about searching the brain death or the non-opposition in these cases, the probability to lose organs is high. The reasons could be a lack of knowledge and experience but also a reluctance of the concept of organ donation of the physicians. The knowledge about organ donation was difficult to evaluate in the absence of validated questionnaire.

A recent review was done on the worldwide barriers to organ donation pointing the brain death criteria, the racial and ethnic considerations, religious considerations, DCD donor, organ [6]. Many studies have taken a look on the medical students all around the world [7-20]. These studies were most of the time monocentric. Another systematic review about the factors that influence the decision to be an organ donor showed that religion and culture, are often tied in with more complex issues such as a distrust of the medical system, misunderstandings about religious stances and ignorance about the donation process [21]. Several studies have found that the two major barriers to donor utilization are failure of the medical team to identify potential donors and refusal of family consent [22-25].

Even if it is difficult to calculate the number of organ loss, the prevalence of brain death practice is expanding internationally. A 2002 survey of brain death practices worldwide disclosed the accepted practice of brain death determination in 80 countries surveyed [26]. Practice guidelines were available in 70 of these countries; legal standards were in effect in 55 countries. Although there was widespread agreement on the concept of brain death, differences were detected in the clinical practices of determining brain death [26,27]. A detailed survey of international brain death practices in 91 countries showed legal provisions in 70% and found that the presence of institutional brain death protocols correlated highly with the presence of an organized organ transplantation network [28]. The World Federation of Neurology Ethics Committee has proposed an attempt to standardize brain death determination throughout the world. A similar international effort sponsored by the World Health Organization is underway. A comparison of the standards among the UK, Canada, and Australia has been published [29]. Even in a same country, these criteria can vary [27,30].

In France, by 2015, 21,378 patients were waiting for a donation for 5746 transplants [31]. Concerning organ donation, French rate is well known. For all deceased donors (donors who died in brain death and those who died after circulatory arrest): in 2015, the overall national rate of levy is 27.4 per million inhabitants (pmh) for a population of 66,484,957 million inhabitants. For subjects who died in brain death only: after a decline in activity between 2008 and 2010, 2015 and 2014 saw its national levy rate increase with 26.6 donors taken pmh. This development took place thanks to an increase in the census rate from 53.6 pmh in 2014 to 53.8 pmh in 2015 (a smaller increase than between 2013 and 2014) 32.5% against 33.6% in 2014. The average age of donors in 2015 is 57.1 years, or 0.6 years less this year. The increase in the number of donors did not depend on the age group of the subjects > 65 years. For patients who died after circulatory arrest following an unexpected cardiac arrest (DDAC-ACI): the program for the collection of this type of donors set up in 2006 did not progress in 2015 (40 donors in 2014). 40 donors or 0.6 pmh were removed from organs that resulted in 62 transplanted kidneys (54 in 2014) and 2 transplanted livers (4 in 2014) [31]. Global data on actual deceased organ donors were resumed on the figure 2.

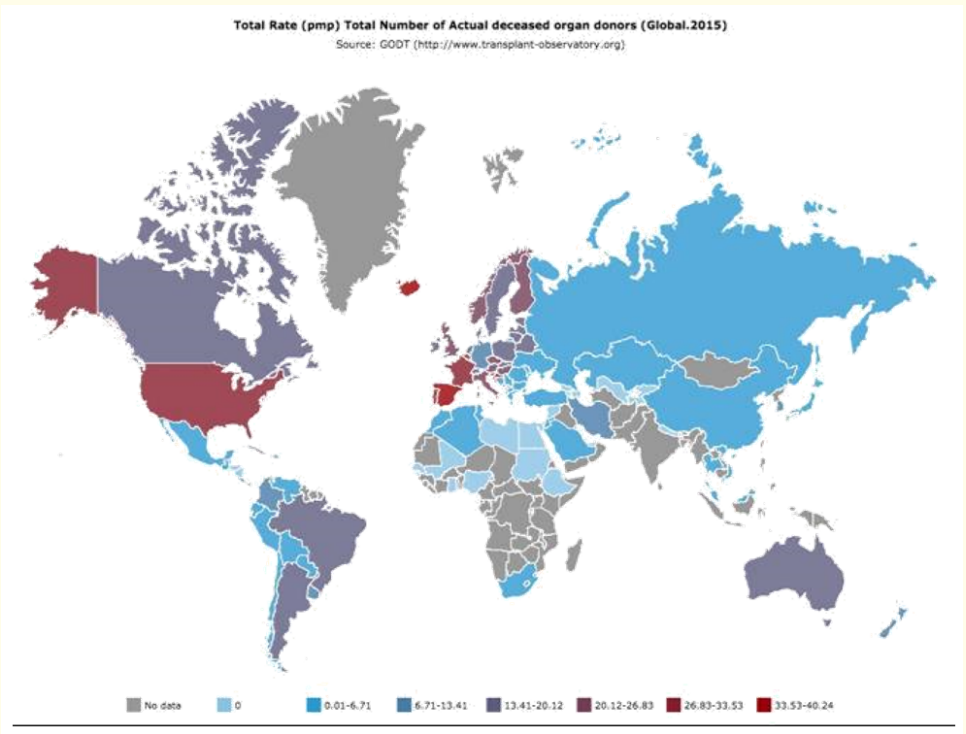

Figure 2: *Total rate of actual deceased organ donors.*

In general population, higher medical education is associated with greater knowledge about organ donation and a more positive attitude toward organ donation [2,32,33]. Health care professionals with a higher education level are more likely to hold an organ donor card and also feel more comfortable in approaching relatives of potential organ donors [32,34,35]. A French study showed that significant differences exist among ICU clinician's perceptions of organ donation which affect family experience and consent rates deserves investigation [36]. Educating health care professionals about the organ donation process appears to be an important factor in maximizing the benefits from the limited organ donor pool [22,24].

Interventional studies showed efficiency to change medical students opinion towards organ donation [12,37]. Like financial incitation existing in some countries, we could even imagine a financial incitation among medical staff [38,39]. After our study, we have organized an international event to learn about and to debate on organ donation in order to sensitize the young physicians which was successful [40].

The first limit of our study is the limited number of responses as we cannot confirm that our study is representative of all physicians. Nevertheless, it included the physicians directly concerned by the organ donation and transplantation. So, it could underestimate the reluctance of the organ donation or the ignorance of the guidelines on the topic by a selection bias. Secondly, even it was an anonymous questionnaire, some people could not respond because of their opinion or their reluctance about the topic of organ donation. More studies are needed to evaluate the benefit of a better teaching about the management on organ donation.

Conclusion

This study has identified many factors as bad professional experiences and insufficient knowledge about the existing laws potentially responsible for limiting the number of donors in young doctors - specialists directly involved in organ donation. Better information on donation, harvesting and transplantation, as well as family management training, could limit these factors.

Strengths and Limitations of this Study

- This study is the first national to investigate the factors potentially responsible for limiting the number of donors in young physicians.
- We used a national large-scale data from a network of two organizations of young physicians of different specialities.
- The main limitation of this study was the apparent rate of responders but it reinforces the message as the study population was more concerned about organ donation to the point of answering the questionnaire.

Author's Contribution

MT and VG designed the study. All authors contributed to the acquisition of the data. MT and VG screened and extracted the data and performed the statistical analysis. MT and VG reviewed the results, interpreted the data and wrote the manuscript. All authors critically revised the manuscript. All authors read and approved the final manuscript.

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Competing Interests

None declared.

Patient Consent

Not required.

Ethics Approval

The study was approved by the National Commission of Informatics and Liberties under the reference 2030028v0.

Supplementary Materials

1: The questionnaire

You are?*

Mark only one oval.

INTERNAL

CCA/ASSISTANT

PH, MCU, PU

External

IADE

FDI

Other

1. **Your age?***

2. **You are?***

Mark only one oval.

A woman

A man

3. **Your speciality?***

Mark only one oval.

Anesthesiology

Thoracic surgery

Digestive Surgery

Heart surgery

Ophthalmic surgery

Urological Surgery

Pediatric surgery

Nephrology

pneumonology

Cardiology

Hepato-gastroenterology

Ophthalmology

Pediatrics

Other

4. **Your City of Exercise?**

5. **Are you aware of the recent release of a new decree on organ donation?***

Mark only one oval.

YES

NO

6. **Do you feel that you have received full information about its content?***

Mark only one oval.

YES

NO

7. Have you ever witnessed a procedure for setting up the levy organ? *

Mark only one oval.

YES

NO

8. **Have you ever been involved in an organ transplant?***

Mark only one oval.

YES

NO

9. **According to you, the communication plan of the Biomedicine Agency Will it provide sufficient information to the general population?***

Mark only one oval.

YES

NO

10. **Which of the following statements contraindicate organ donation?***

Tick all that apply.

Patient registration in the National Rejection Register

Written expression of patient refusal

Oral expression of the patient while he was alive

Refusal of the family

Other:

11. **Is it legal to take organs from an opposite patient during his lifetime? This idea if his family wants it?***

Mark only one oval.

YES

NO

12. What are the issues raised by this new decree?*

Tick all that apply.

Partial donation of organs (choice of organ (s) to be given)

Donation (possibility of receiving compensation)

Non-anonymous gift (possibility of gratification/ follow-up of the person donor/recipient)

On-line refusal register for an optimized collection (less doubt, less loss)

Do not know

Other:

13. **The objective of this new decree is to increase the pool of donors died. What do you think of its real impact? ***

Mark only one oval.

Increased number of donors

Reduction in the number of donors

Number of stable donors

14. **What is your opinion on the principle of presumed consent?***

Mark only one oval.

Rather for

Rather

Indifferent

15. **Are you concerned about conflict situations or resentment with families?***

Mark only one oval.

YES

NO

16. **In your opinion, should the family be involved in the decision of organ donation?***

Mark only one oval.

YES

NO

17. Are you interested in an event dedicated to organ donation?*

Mark only one oval.

Yes but not more than one evening

OK for 2 nights max

Yes, even a whole day, rather a Friday

Yes, even a whole day, rather a Saturday

No

18. **As part of an organ donation event, what topics Would you like to see?**

19. **Are you an organ donor?**

Mark only one oval.

YES

NO

Without opinion

20. **If not, is it due to:**

Tick all that apply.

To your religion?

Has a badly lived professional experience of transplantation?

Has a badly lived professional experience of the donation procedure?

Other:

21. **Your religion?***

Mark only one oval.

Christian

Muslim

Jewish

Atheist

Agnostic

Not willing to answer

Other:

22. **Would you agree with the donation of organs for a member of your close family?***

Mark only one oval.

YES

NO

23. **Do you encourage people around you to be potentially donor?**

Mark only one oval.

YES

NO

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