

# Knowledge and attitude of interns and residents regarding organ-tissue donation and transplantation at an academic medical center in Mexico City

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## RESUMEN

**Introducción.** El trasplante de órganos y tejidos se han convertido en el tratamiento de elección para los pacientes con insuficiencia de órganos en todo el mundo. El número de pacientes en lista de espera crece cada año, la escasez de órganos es una limitante, especialmente en México. **Objetivo.** Describir el conocimiento y la actitud de los internos y residentes de diferentes especialidades respecto a la donación de órganos y el trasplante en el Hospital Médica Sur de la Ciudad de México. **Material y métodos.** Estudio descriptivo transversal. Se incluyeron 137 médicos. Se utilizó un cuestionario dividido en tres secciones sobre demografía, la actitud hacia la donación y la evaluación de los conocimientos en materia de donación y trasplantes. **Resultados.** Se evaluaron 137 médicos (36 y 101 residentes), 55% varones, edad media 25 años. El 91.24% respondió poder convertirse en donante. El 54% aceptó tener conocimiento respecto a la donación y el trasplante. Casi 90% sabía los criterios clínicos de muerte cerebral del donante, 89% sabía qué tejidos y órganos pueden ser utilizados para la donación, y finalmente 98.54% estaba de acuerdo con que donar órganos y tejidos y el trasplante es un tema importante en la salud pública. **Conclusiones.** Los internos y residentes en nuestra institución tienden a una actitud positiva hacia la donación de órganos. La falta de conocimiento no es una barrera para convertirse en un donante de órganos. Se necesitan programas educativos para aumentar la sensibilización respecto a la donación de órganos y el proceso de trasplante.

**Palabras clave.** Muerte cerebral. Trasplante de órgano. Educación. Centros Médicos Académicos.

## ABSTRACT

**Background.** Organ and tissue transplantation have become the therapy of choice for patients with organ failure around the world. The number of patients in waiting lists is growing every year, organ shortage is the rule in every country; especially in Mexico. **Objective.** Describe the knowledge and attitude of interns and residents of different specialties regarding organ and tissue donation and transplantation at Medica Sur Hospital in Mexico City. **Material and methods.** Descriptive cross-sectional study; 137 physicians (interns and residents of different specialties) were included. The source of information was a structured questionnaire of 19 questions, divided into three sections. The first section: demographics, second section: attitude toward donation and the third section: evaluation of the knowledge on donation and transplants. **Results.** We evaluated 137 physicians (36 interns and 101 residents) 55% males, mean age 25 years, mostly internal medicine residents, 91.24% have been brought up to become a donor. 54% accepted to have regular knowledge regarding donation and transplantation. Nearly 90% knew clinical criteria for brain death donor, 89.05% know which tissues and organs may be used for donation and finally 98.54% of all physicians agreed that organ and tissue donation and transplantation is an important issue on public health. **Conclusions.** Interns and residents in our institution tend to have a positive attitude towards organ donation. The lack of knowledge is not a barrier to becoming an organ donor. Educational programs for interns and residents are needed in order to increase knowledge and awareness regarding organ donation and transplantation process.

**Key words.** Brain death. Organ transplantation. Education. Academic Medical Centers.

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## INTRODUCTION

Organ transplantation is well recognized as the therapy of choice for patients with organ failure or end-stage organ disease. Around the world the number of patients waiting for an organ is growing every day; Mexico is not an exception. Despite major efforts and economic improvements organ shortage is the rule. Organ and tissue transplantation requires not only social involvement but also, every health provider must have basic knowledge of donation and transplantation. Generally, it is thought that low organ and tissue donation rate is due to a poor knowledge, trusts and misperception of the society and even of the medical staff. Several previous reports regarding organ donation in general population show a positive attitude toward donation and transplantation, it is very important to notice that medical staff including interns and residents from different specialties are also part of the society, so their knowledge should be better than the rest of the society.<sup>1</sup> Organ and tissue donation process is one of the most complex processes in medical practice, it begins with the detection and identification of the potential donor, especially in critical care areas of the hospital, such as the emergency room and critical care and cardiovascular units, diagnosis of brain death, communication to the family the diagnosis, and finally after several hours the organ and tissue donation petition.<sup>2</sup> In Mexico, not only the patient's wishes to become organ donor is important; the family have the final decision about donation. Afterward, comes the paperwork especially by the attending doctor and the organ donation coordinator who is the figure in the medical staff responsible for the whole process. This complex process has different factors that will determine the donation rate, the first and most important is the knowledge and attitude of the physicians toward donation, detection and maintenance of brain death donors, and finally communication to the family and the transplant team. Another factor that influences is the previous personal and familial information about this process.<sup>3</sup>

The organ donation rate varies in every country, as in other regions the gap between the number of available donors and the candidates on the waiting list is still very important. As reported by Salvalaggio, *et al.* the mean rate of donation in Latin America is 8.3 pmp\* and the family refusal for donation varies from 30% in Uruguay to 70% in Peru.<sup>4</sup> Here, in Mexico the organ donation rate is nearly 3.6 pmp, it's quite different in Europe and the United States which have 15 pmp and 26 pmp respectively.<sup>4</sup> According to official numbers brought by National Trans-

plantation Center in Mexico (CENATRA) by the time this paper was written 20,368 patients were listed waiting for an organ, 12,415 for kidneys, 405 livers, 56 hearts, 11 pancreas, 9 kidney-pancreas, 2 liver-kidney, 1 lungs and 1 for combined heart-lungs. The Mexican general health law mentions that the assignment for organ or tissue transplantation, will account for severity of illness, opportunity of transplantation, benefits, compatibility with the donor and other medical criteria accepted, but also the localization of the donor hospital and even if it's a public or private center. If there is not a national urgency or medical reason for the assignment of that organ to a special recipient, the assignment will follow hospital, institutional, state and finally national data base.<sup>5</sup>

Exley, *et al.* reported that the general public is not familiar with transplantation procedure.<sup>6</sup> Taking this as an advise and with all the issues that could interfere with organ and tissue donation we decided to conduct this study. The aim is to describe the knowledge and attitude of interns and residents of different specialties toward organ and tissue donation and transplantation at an academic medical center in Mexico City.

## MATERIAL AND METHODS

The study was designed by the authors and conducted through March 2016. 137 physicians were interviewed, with a printed, self-administered and completely anonymously questionnaire, consisting of three sections, the first one; about demographic data, second section about attitude toward donation and the third section about knowledge on transplantation. This questionnaire included aspects on making decisions on organ and tissue donation as well as basic knowledge of transplantation in Mexico. Data collected were analyzed descriptively using measures of central tendency and scatter and presented in form of tables. The qualitative variables were expressed as mean and standard deviation.

## RESULTS

During the established period, 137 physicians were interviewed, 73.7% (n = 101) residents and 26.27% (n = 36) interns. Male physicians constituted 55.47%, female physicians 44.52% with a mean age of 25 years ( $\pm$  5 years). We interviewed residents from different specialties as shown in table 1.

We also analyzed the time that every physician has been working in this medical center; 56.20% have been working at Medica Sur for less than a year, 43.79% for

**Table 1.** Distribution of interviewed residents according to their specialty.

Specialty	n (%)
Internal Medicine	56 (55.44)
General Surgery	6 (5.94)
Anesthesiology	6 (5.94)
Gastroenterology	6 (5.94)
Pathology	4 (3.96)
Medical Oncology	3 (2.97)
Radiology	9 (8.91)
Critical Medicine	3 (2.97)
Neonatology	1 (0.99)
Didn't answer	7 (6.93)

more than 1 year; and one resident that has been working at Medica Sur for 7 years. If we split physicians into two groups, residents, and interns, we found that every intern has been working for less than a year. In the residents group we found that 40.59% (n = 41) have been for less than a year, 31.68% (n = 32) for 1 year, 10.89% (n = 11) 2 years, 8.91% (n = 9) 3 years, 1.98% (n = 2) 4 years, 2.97% (n = 3) 5 years, 1.98% (n = 2) 6 years and finally 0.99% (n = 1) 7 years.

In the second section of the questionnaire regarding on attitude the interviewed physicians answered as follows; 91.24% have been brought up to become a donor, 65.7% had transmitted the wish to become a donor to their families, 93.3% would donate organs of a family member, this shows a good attitude toward donation, however, only 24.8% dispose of a donor card or registration as an organ donor. And 65.7% don't know their partner's wishes or attitudes toward donation.

The third section of the questionnaire, regards on knowledge about organ and tissue donation and transplantation, we found that 54.01% admitted having regular knowledge, 43.06% poor knowledge, 2.18% accepted to have knowledge of transplantation but not proper training and finally 1 physician (0.99%) accepted to have no knowledge at all.

We also asked if during medical school, organ and tissue donation and transplantation were included in their formal educational program; only 30.65% (n = 42) physicians answered positively.

24.08% know which kinds of transplants are done in Mexico; 43.79% answered that not all kind of transplants are done in Mexico, 32.11% don't know at all. The majority 80.92% knows the clinical criteria for brain death, 94.16% know the clinical criteria for donor selection and also the majority of physicians know that each organ has its proper selection criteria. We also wanted to investigate

if this group of physicians knew if brain death donor is the most common in Mexico, we found that 37.95% answered positive, 35.03% answered no, and 27% don't know which type of donor is the most common.

The majority of physicians (89.05%, n = 122) know which tissues and organs can be used for donation, finally we wanted to know if our center promotes organ and tissue donation, unfortunately 65.69% (n = 90) didn't know if our center does campaigns promoting donation; another important information obtained is that, 56.2% (n = 77) answered that the hospital does not have information for patients about organ and tissue donation in common and public areas; 29.92% (n = 41) answered that there is information and 13.86% (n = 19) answered that there is not that kind of information in our center. Nevertheless, 98.54% of all physicians agreed that organ and tissue donation and transplantation is an important issue in public health.

## DISCUSSION

Organ shortage for donation is a very important health issue not only in Mexico, but around the world, according to official data obtain from CENATRA.<sup>5</sup> At the moment this paper was written, 509 kidney, 31 liver transplants, 6 heart transplants have been reported to the National Transplant Registry Informatics System (SIRNT), these number of transplants are below Mexican necessities, CENATRA's final 2015 report mentions that during 2015 a total 1,948 organ and tissue donations from deceased donors occurred in Mexico; 488 were from brain death donors and 1,460 from irreversible non beating heart donors.<sup>5</sup> A total of 433 of these donations occurred in Mexico City, mostly (57%) in the public health services; talking about brain death organ donors a total of 86 occurred in Mexico City, the majority of these donations occurred in the Mexican Institute of Social Security (Instituto Mexicano del Seguro Social, IMSS). And only 10% occurred in the private health system.<sup>5</sup> This is the reason we conducted this study, we wanted to know the interns and residents attitude and knowledge regarding organ and tissue donation and transplantation; our center which figures as one of the most important medical and academic center in Mexico City. We conducted this study focussing on training doctors because they use to spend more time in the hospital, 101 residents were interviewed, this is important because they already finished medical school and have more experience at the clinical field, however the majority had less than a year working in Medica Sur, this is important because they haven't been in touch with transplantation in our center,

besides we also interviewed residents that have been working in Medica Sur for several years and the experience with organ donation but transplantation wasn't different.

As published in other series physicians tend to be more sensitive to organ and tissue donation<sup>6,7</sup> in our study 91.24% have been brought up to become a donor and 93.3% would donate organs of a family member, according to Rios, et al. in Spain,<sup>7</sup> they found that 60% of studied physicians would become organ or tissue donors, however their study only had 84 interviews. Other studies conducted in Spain shows that general population also has a good attitude toward organ and tissue donation (60-85%).<sup>7,8</sup>

In Mexico, as in other countries one of the most important way of organ and tissue donation promotion is using donor registries or donor cards; in our study, we found that 24.8% dispose of a donor card or a registration, but the majority would donate. The use of the organ donor card is a common practice in every organ procurement coordination, in Mexico and in other countries however in Mexico it's not enough to be registered or having an organ donor card to donate. In order to diminish the number of negatives for organ and tissue donation petitions, one fundamental step is the previous dialogue with the family about the intention to donate.<sup>9-11</sup> Usually the family take the final decision on organ and tissue donation, with the difficulties this represents usually the family tends to respect the love one previous decision regarding donation. Our study shows that 65.7% had transmitted this wish to become a donor to their families; on the other hand, 65.7% don't know their partner's wishes or attitudes toward donation. Some authors say that this lack of information in the family could be a barrier for organ and tissue donation.<sup>11</sup>

Regarding on knowledge of this issue, we found that 54.01% admitted having regular knowledge, 43.06% poor knowledge, 2.18% accepted to have knowledge of transplantation but not proper training and finally 1 physician (0.99%) accepted to have no knowledge at all. Another important finding is that during medical school only 30.65% accepted organ and tissue donation and transplantation were included in their formal educational program. Even though the clear lack of information the majority (80.92%) know the clinical criteria for brain death, 94.16% knows the clinical criteria for donor selection and also the majority of physicians know that each organ has its proper selection criteria. Another important finding is that 37.95% answered that the most common donor is brain death donor which is true for organ donation but 35.03% answered living donor is the most common, and 27% didn't know which type of donor is the most common. This means that

knowledge on organ and tissue donation could not be correct at all. The majority of physicians (89.05%) know which tissues and organs can be used for donation which is good.

In conclusion, interns and residents in our institution tend to have a positive attitude towards organ donation. However, lack of knowledge of organ donation among them is not a barrier to identifying brain death, potential organ donor or even become an active organ donor. Our data highlight the need to incorporate educational programs among interns and residents to increase knowledge and awareness regarding organ donation and the transplantation process.

## HIGHLIGHTS

- Organ transplantation is well recognized as the therapy of choice for patients with organ failure or end-stage organ disease.
- Organ shortage is the main problem in every organ and tissue transplantation program in Mexico.
- Interns and residents in our institution tend to have a positive attitude towards organ donation; however, we need a better way to promote and educate interns and residents.

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