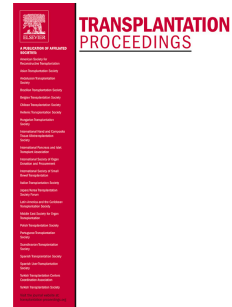


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Are high rates of cadaveric donation conditioning the attitude towards liver donation among medical students?

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Keywords: Living liver donation; Transplant; Attitude; Psychosocial.

Abbreviations: Donación de vivo hepática: DVH

Tables: 1.

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ABSTRACT

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-Population under study: Medical students in Spanish Universities. Database of the Collaborative International Donor Project, stratified by geographical area and academic course. The completion was anonymous and self-administered. Groups under study: *Group 1* (n=1136): Students in universities of Regions with >50 *pmp* donors. *Group 2* (n=2018): Students in Region universities with <40 *pmp* donors.

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RESULTS. The attitude towards related liver donation is more favorable among the students of Regions with <40 *pmp* donors than among those of >50 *pmp* donors. Thus, in group 1, 88% (n=1002) of students are in favor compared to 91% (n=1831) of group 2 (p=0.0241). The psycho-social profile of each study group about their attitude towards the donation of liver related liver is analyzed in *Table 1*. There is a similar profile between the two groups, although there are differences in some variables such as: 1) age; 2) a belief that one might need a transplant; 3) family discussion about donation and transplantation; 4) discussion with friends about donation and transplantation; and 5) to know about a donor.

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CONCLUSIONS. The awareness of related living donation among Spanish medical students is greater among the Regions with lower organ donation rates.

INTRODUCTION. Live solid organ donation transplants were the first donation to be used. However, as organ transplantation with cadaveric donors has progressed, living donation has been decreasing (1, 2). A clear example is Spain, where donation rates are the highest worldwide and for many years the live donation was anecdotal. Studies among nephrologist confirmed the low predisposition to propose the donation among their patients to have the possibility of having a cadaver donor in a prudential time. This situation was still more accentuated in live liver donation given the existing risk to the donor. However, the non-existence of dialysis and mortality on the waiting list is conditioning to increase this donation. As for each donation, for the promotion of hepatic live donation, the involvement of health professionals is important since their training period (3-11). This general situation that we have raised also seems to be repeated in smaller geographic areas within each country. Thus, there are data that indicate that in areas with high cadaveric donation rates the awareness of living donation is lower (12, 13). Therefore, the objective of this work is to analyze the attitude toward living liver donation among Spanish medical students according to the donation rates of their respective Regions.

METHOD. *Population under study:* Medical students in Spanish Universities. Database of the Collaborative International Donor Project (14), stratified by geographical area and academic year. *Study groups:* Two groups are selected according to the donation rates in the respective Spanish Regions where they course their studies. Group 1 (n=1136): Students Regions' universities with > 50 *pmp* donors. Group 2 (n=2018): Students in Regions' universities with <40 *pmp* donors. *Instrument of measurement:* The instrument of measurement used was a validated questionnaire of attitude towards Organ Donation and Transplantation (PCID-DVH-RIDS: The questionnaire of "*Proyecto Colaborativo Internacional Donante sobre Donación de Vivo Hepático*" (in Spanish), developed by Dr. Ríos (15). This questionnaire included items distributed into three subscales or factors, and it was validated in the Spanish population, presenting a total explained variance of 63.995% and a Cronbach's Alpha Confidence coefficient of 0.778. Each factor has an internal consistency, measured by Cronbach's Alpha Confidence coefficient of α : 0.80, α : 0.70, and α : 0.55 respectively, and an explained variance of 38.461%, 14.228%, and 11.306% respectively. In Addition an *ad hoc* questionnaire was applied including other variables. *Fieldwork:* After the project was approved in each university, the questionnaire was distributed in the selected courses, all supervised by a professor from each of the universities collaborating with the project. The questionnaire is completed anonymously and self-administered. Previously the project is explained and it is indicated that the participation in the project is voluntary. The consent is verbal. *Statistics:* A descriptive statistic was performed, and Student's t test and χ^2 , Fisher. Also it is performed a multivariate analysis. P values less than 0.05 were considered statistically significant.

RESULTS. The attitude towards donation of liver is more favorable among the students of the Regions with <40 *pmp* donors than among those of > 50 *pmp* donors. Thus, in group I 88% (n=1002) of students are in favor compared to 91% (n=1831) of group 2 (p=0.0241). *Table 1* describes the psycho-social profile of each study group about their attitude towards the donation of liver related liver. There is a similar profile between the two groups, although there are differences in some variables such as: 1) age; 2) a belief that one might need a transplant; 3) family discussion about donation and transplantation; 4) discussion with friends about donation and transplantation; and 5) to know about a donor. Finally, it is noteworthy that if the attitude towards donation of non-related liver alive is considered, no significant differences are observed (p=0.3548). Thus, in group I, 32% (n=365) of students are in favor compared to 34% (n = 681) of group 2.

In the multivariate analysis in the group I (>50 *pmp*) the variables related with the attitude are: a) sex women (Odds Ratio 1.721; p=0.001); b) Attitude in favor towards living kidney donation (OR = 6.756, p < 0.001); and c) Consider by the respondent that liver living donation has no risk (OR = 4.587, p = 0.009).

With respect to the group II (<40 *pmp*) the variables related with the attitude are: a) Attitude in favour of cadaveric organ donation (OR = 2.531, p < 0.001); b) Attitude in favour of living kidney donation (OR = 6.289, p < 0.001); c) Consider by the respondent that liver living donation has no risk (OR = 8.196, p < 0.001); d) Family discussion about donation (OR = 1.468, p < 0.036); and e) Having previously known an organ donor (OR = 3.021; p < 0.004).

DISCUSSION. Liver transplant has a great limitation and is the organ deficit for transplant. This situation, added to the lack of bridging therapies (such as dialysis in kidney transplantation), conditions the high mortality in waiting list for liver transplantation. All this, together with the improvement of the surgical technique, has justified the increase in living liver donation, which progressively decreases the morbidity and mortality in the donor to acceptable figures (16-21). Our study shows how this sensitization towards living liver donation is conditioned by the reality of the organ donation and transplantation process in each geographical area. Thus, in areas with high rates, greater than 50 *pmp* donors, the attitude is less favorable than in areas with rates below 40 *pmp* donors, since this directly influences in waiting list and significantly in mortality in it. When the psycho-social profile in both groups is analyzed, it is necessary to indicate, as can be seen in *table 1*, that there are less sensitizing factors towards organ donation and transplantation in group I than in group 2, fact that also can influence the overall attitude toward related living liver donation. Finally, it should be noted that medical students are sensitized to not related living liver donation with more than 30% in favor. In this case, no differences in attitude are observed depending on donation rates of their

geographical area. Possibly, the affective factors are conditioning these differences. In conclusion, we can say that the awareness towards related living liver donation in Spanish medical students is higher among the Regions with lower organ donation rates.

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Table 1. Analysis of the psychosocial profile in both groups of medical students in relation to the attitude toward related living liver donation.

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Variable	Grupo 1: > 50 donantes PMP			GRUPO 2: < 40 donantes PMP		
	In favor 88% n=1117	Not for 12% n=124	p	In favor 91% n=1231	Not for 9% n=127	p
SOCIO-PERSONAL VARIABLES						
Age (years):	21 ± 3.43	21 ± 4.06	0.704	21 ± 3.03	21 ± 3.28	0.011
Gender:						
Male (G1 n=344 /s. G2 n=578)	286 (83%)	58 (17%)	<0.0001	510 (88%)	68 (12%)	0.008
Female (G1 n=785 /s. G2 n=1417)	710 (90%)	75 (10%)		1304 (92%)	113 (8%)	
Missing data	6	1		17	6	
VARIABLES OF KNOWLEDGE ABOUT DONATION AND TRANSPLANTATION						
A belief that one might need a transplant:						
Does not know (G1 n=152 /s. G2 n=305)	133 (88%)	19 (12%)	0.898	266 (87%)	39 (13%)	<0.0001
There is a possibility of getting sick (G1 n=950 /s. G2 n=1672)	842 (89%)	108 (11%)		1532 (36%)	140 (64%)	
No, I lead healthy life (G1 n=23 /s. G2 n=26)	20 (87%)	3 (13%)		18 (69%)	8 (31%)	
Missing data	7	4		15	0	
Attitude towards ODT:						
In favor (G1 n=897 /s. G2 n=1625)	816 (91%)	81 (9%)	<0.0001	1520 (94%)	105 (6%)	<0.0001
Not for (G1 n=239 /s. G2 n=393)	186 (78%)	53 (22%)		311 (80%)	82 (21%)	
Missing data	0	0		0	0	
Attitude towards living kidney donation:						
In favor (G1 n=373 /s. G2 n=638)	357 (96%)	16 (4%)	<0.0001	619 (97%)	19 (3%)	<0.0001
Not for (G1 n=97 /s. G2 n=145)	70 (72%)	27 (28%)		110 (76%)	35 (24%)	
Doubts (G1 n=666 /s. G2 n=1235)	575 (86%)	91 (14%)		1102 (89%)	133 (11%)	
Missing data	0	0		0	0	
Risk assessment of liver live donation:						
A lot (G1 n=114 /s. G2 n=86)	94 (83%)	20 (17%)	<0.0001	75 (87%)	11 (13%)	<0.0001
Quite (G1 n=364 /s. G2 n=494)	314 (86%)	50 (14%)		429 (87%)	65 (13%)	
Some (G1 n=436 /s. G2 n=1085)	403 (92%)	33 (8%)		1010 (93%)	75 (7%)	
Almost nothing (G1 n=102 /s. G2 n=213)	98 (96%)	4 (4%)		203 (95%)	10 (5%)	
Does not know (G1 n=120 /s. G2 n=129)	93 (78%)	27 (22%)		109 (85%)	20 (15%)	
Missing data	0	0		5	6	

VARIABLES OF SOCIAL INTERACTION

Family discussion about donation and transplantation:

Yes (G1 n=813 /s. G2 n=1407)	723 (89%)	90 (11%)	0.250	1308 (93%)	99 (7%)	<0.0001
No (G1 n=318 /s. G2 n=607)	275 (87%)	43 (13%)		519 (86%)	88 (14%)	
Missing data	4	1		4	0	

Friends coment about organ donation:

Yes (G1 n=818 /s. G2 n=1501)	723 (88%)	95 (12%)	0.707	1383 (92%)	118 (8%)	<0.0001
No (G1 n=314 /s. G2 n=515)	275 (88%)	39 (12%)		447 (87%)	68 (13%)	
Missing data	4	0		1	1	

Carrying out prosocial activities:

Yes, occasionally (G1 n=244 /s. G2 n=410)	216 (89%)	28 (11%)	0.021	368 (90%)	42 (10%)	0.054
Yes, usually (G1 n= 107 /s. G2 n=201)	90 (84%)	17 (16%)		190 (95%)	11 (5%)	
No, but would be willing (G1 n= 711 /s. G2 n=1258)	644 (91%)	67 (9%)		1145 (91%)	113 (9%)	
No, and will not participate (G1 n=65 /s. G2 n=136)	52 (80%)	13 (20%)		117 (86%)	19 (14%)	
Missing data	0	9		11	2	

Knowing a donor

No (G1 n=963 /s. G2 n=1729)	853 (89%)	110 (11%)	0.329	1555 (90%)	174 (10%)	0.004
Yes (G1 n=171 /s. G2 n=279)	147 (86%)	24 (14%)		266 (95%)	13 (5%)	
Missing data	2	0		10	0	

Knowing a transplanted

No (G1 n=857 /s. G2 n=1453)	764 (89%)	93 (11%)	0.073	1307 (90%)	146 (10%)	0.055
Yes (G1 n=276 /s. G2 n=563)	235 (85%)	41 (15%)		522 (93%)	41 (7%)	
Missing data	3	0		2	0	

RELIGIOUS VARIABLES

Religious attitude

Catholic (G1 n=615 /s. G2 n=1168)	554 (90%)	61 (10%)	0.124	1078 (92%)	90 (8%)	0.056
Agnostic-atheist(G1 n=456 /s. G2 n=769)	399 (88%)	57 (12%)		687 (90%)	87 (11%)	
Non-Cathloic religion (G1 n=35 /s. G2 n=57)	34 (97%)	1 (3%)		50 (88%)	7 (12%)	
Missing data	15	15		16	8	

Knowledge of one's religion toward donation and transplantation:

In favor (G1 n=395 /s. G2 n=751)	355 (90%)	40 (10%)	0.128	696 (93%)	55 (7%)	0.638
Does not know it (G1 n=181 /s. G2 n=254)	168 (93%)	13 (7%)		233 (92%)	21 (8%)	
Against (G1 n=110 /s. G2 n=136)	94 (86%)	16 (14%)		123 (90%)	13 (10%)	
Missing data*	385	65		779	98	

VARIABLES OF ATTITUDE TOWARD THE BODY

Concern about mutilation after donation:

I do not care (G1 n=711 /s. G2 n=1375)	694 (90%)	77 (10%)	0.030	1274 (93%)	101 (7%)	<0.0001
Yes, I am very worried (G1 n=138 /s. G2 n=194)	114 (83%)	24 (17%)		174 (90%)	20 (10%)	
Does not know (G1 n=213 /s. G2 n=427)	185 (87%)	28 (13%)		363 (85%)	64 (15%)	
Missing data	9	5		20	2	

* Missing data are mainly the Agnostic-atheist, wich are not analyzed for not to have a religion.

HIGHLIGHTS

- 1) The awareness of related living donation among Spanish medical students is greater among the Regions with lower organ donation rates.
- 2) The psycho-social profile of each study group about their attitude towards the donation of liver related liver is similar.
- 3) There are differences in some variables such as age; a belief that one might need a transplant; family discussion about donation and transplantation; discussion with friends about donation and transplantation; and to know about a donor.
- 4) No differences in attitude are observed depending on donation rates of their geographical area.