Original Article

The quest for favourable subgroups to encourage living kidney donation in Spain. An attitudinal study among British and Irish citizens resident in southeastern Spain

Antonio Ríos^{1,2}, Laura Martínez-Alarcón^{1,2}, José Sánchez³, Nick Jarvis¹, Jose A. Garcia⁴, José M. Rodríguez², Pascual Parrilla² and Pablo Ramírez^{1,2}

¹Coordinación Regional de Trasplantes de la Comunidad Autónoma de Murcia, Consejería de Sanidad, ²Departamento de Cirugía, Hospital Universitario Virgen de la Arrixaca, El Palmar, Servicio Murciano de Salud, ³Asociación de Ayuda al Enfermo Renal (ADAER) and ⁴Servicio de Urología, Hospital Universitario Virgen de la Arrixaca, El Palmar, Servicio Murciano de Salud, Murcia, Spain

Abstract

Main problem. There is an increasing presence of a population of British and Irish origin in southeastern Spain. Hypothesis: this population native from countries with higher rates of living kidney donation than Spain will be very much in favour of related living kidney donation. Objective: to analyse the attitude of this population subgroup towards living kidney donation.

Methods. Between November 2005 and April 2006, a random sample was taken of British and Irish residents in southeastern Spain ($n = 1700$) and stratified by the respondent's nationality. Attitude was evaluated using a validated questionnaire that was completed anonymously and self-administered.

Results. The questionnaire completion rate was 90% ($n = 1533$). Ninety percent ($n = 1384$) are in favour of related living kidney donation, 9% ($n = 138$) are against and the remaining 1% ($n = 11$) are unsure. The following variables are related to attitude towards living kidney donation: (1) attitude towards cadaveric organ donation ($P < 0.001$); (2) having previous experience with the donation and transplantation process ($P = 0.001$); (3) participation in social help activities ($P = 0.010$); (4) having spoken about the matter within the family unit ($P = 0.036$); (5) the attitude of a respondent's partner towards the matter ($P = 0.001$); (6) knowing that one's own religion is in favour of this type of therapy ($P = 0.002$); (7) evaluation of the risks involved in this kind of donation ($P < 0.001$) and (8) concern about 'mutilation' after donation ($P < 0.001$). In the multivariate analysis, two variables are significantly related to this attitude: a negative attitude towards cadaveric donation (odds ratio = 0.309) and knowing that one's religion is in favour (OR = 1.745).

Conclusions. The attitude of British and Irish citizens who are resident in southeastern Spain is very favourable and their attitude is very closely related to attitude towards cadaveric donation, family attitude and the attitude of their religion. The patients on the waiting list who are of British or Irish origin would be an ideal group to whom living kidney donation could be offered.

Keywords attitude; British; living kidney donation; population; psychosocial factors; Spain

Introduction

Optimal organ donation achieves the best outcome with the minimum negative effect possible. In this respect, cadaveric donation is the best option because it does not involve any type of mutilation for a living being and it is able to improve the health and provide quality of life for the recipient [1]. However, even in Spain, which has the highest level of organ donation, the level of donation is insufficient [2–4]. To reduce this deficit, living donation is being encouraged given that it is an ethically acceptable therapeutic option because of the low level of risk for the donor and the good clinical outcomes [5–6]. However, in spite of most Spanish transplant centres having an ongoing living donation programme and most health professionals being in favour, at the current time this type of donation is minimal [2,7–9]. Moreover, it has been seen that Spanish patients on the transplant list are reluctant to accept an organ from a family member because they believe that they might be able to obtain an organ from a cadaver and therefore avoid the mutilation of the family member [10]. Only 35% of Spanish patients on the waiting list would accept a hypothetical related living kidney if it were offered to them, 60% would prefer to wait on the waiting list and the remaining 5% are undecided [10,11]. However, it should be highlighted that

Correspondence and offprint requests to: Antonio Ríos Zambudio, Avenida de la Libertad no. 208, 30007 Casillas, Murcia, Spain. Tel: +34-968-27-07-57; E-mail: ARZRIOS@teleline.es

86% of patients on the waiting list would donate a related organ.

In Spain, as a member of the European Union, there has been a considerable influx of European citizens into the southeast of Spain. In many residential housing estates in southeastern Spain, there is a particularly high percentage of British citizens [12]. This phenomenon is also having repercussions on the healthcare system, as these patients are included on the transplant waiting list (5–10%), on dialysis (5–15%) and they also become available as potential donors.

The hypothesis of the study is that the population that resides in our geographical area that is native from the British Isles (which includes countries with higher rates of living kidney donation than Spain [13]) will be more in favour of related living kidney donation, and therefore, will be a target group for our healthcare policy for trying to encourage living kidney donation. Therefore, the objective of this study is to determine the attitude of the population of British and Irish origin in our geographical area towards living kidney donation for transplantation and to analyse the various epidemiological and psychosocial factors that might influence attitude.

Materials and methods

Study population

A random representative sample was taken of the population of ≥ 15 years of age who live in the autonomous regional community of Murcia in southeastern Spain. This sample was stratified according to a respondent's nationality ($n = 1700$). In order to find the population with these characteristics, the latest census of inhabitants of the regional community was taken as a population reference in which there is a record of the percentage of the legal population born in the British Isles. This municipal census corresponds to the year 2003 and the total population of our autonomous community is 1 269 230 inhabitants, with the British and Irish population living permanently in the community area accounting for 3464 of these inhabitants (<http://www.ine.es/inebase/cgi/axi>). In addition, there are more than 15 000 British and Irish citizens who usually reside in housing estates in many coastal areas created in the last 10 years, according to the sources of the private companies that manage these housing estates.

Such a population tends to be located within each municipality in specific areas and housing estates, thus making it easier to locate such a population. The sampling error for a confidence level of 95.5% (2σ), $K = 2$, was estimated to be $e \pm 1.91$ for the whole sample, $P = q = 0.5$.

Data collection procedure

The instrument used to measure attitude was a questionnaire with questions grouped into different categories, with one option or many options that are based on surveys used and validated in our geographical area [8,9,14]. A pilot study was carried out between May and August 2005 taking a random sample in order to confirm and validate the

questionnaire in this population subgroup. The only problem detected in certain subgroups was the language, so the questionnaires used had a version in Spanish and another translated into their native English language, giving the respondent the option to choose one or the other.

The questionnaire was self-administered and completed anonymously (3 to 5 min were necessary for it to be completed), with the whole process being supervised by collaborators from the Regional Transplant Coordination Center. For this study, five professionals who were previously trained collaborated from the Regional Transplant Center, and the study was carried out between November 2005 and April 2006.

Variables analysed

Attitude towards living kidney donation (when it is for relatives and when it is not) was analysed as a dependent variable and the following were analysed as independent variables: (1) age; (2) sex; (3) marital status (single, married, divorced/separated or widowed); (4) having descendents; (5) level of education; (6) country of origin in the British Isles and the most important regions; (7) attitude towards cadaveric organ donation; (8) personal experience (family member or friend) related to organ donation or transplantation; (9) participation in voluntary-type pro-social activities; (10) having spoken about organ donation and transplantation within the family; (11) the attitude of a respondent's partner towards organ donation and transplantation; (12) a respondent's religion; (13) knowing the attitude of one's religion towards organ donation and transplantation; (14) concern about possible mutilation after donation and (15) evaluation of the risks involved in living kidney donation.

Statistical analysis

The data were stored in a database and were analysed using the SPSS 11.0. statistical package. Descriptive statistical analysis was applied to each of the variables. Student's t -test and the χ^2 test were applied in the bivariate analysis complemented by an analysis of the remainders. Fischer's exact test was applied when the contingency tables had cells with an expected frequency of < 5 . To determine and evaluate multiple risk factors, a logistical regression analysis was applied using the variables that were statistically significant in the bivariate analysis. Values of $P < 0.05$ were considered to be statistically significant.

Results

Attitude towards living kidney donation

The questionnaire completion rate was 90% (1533 respondents out of 1700 were selected). The 167 cases who did not complete the questionnaire corresponded to 57 people who directly refused to answer the survey alleging a lack of time, 15 who refused to complete the questionnaire because it was about 'organ donation and transplantation' and the remaining 95 who were considered to be invalid questionnaires because although the respondent had responded, the

question referring to the dependent variable had not been answered.

Regarding attitude towards living kidney donation, 90% ($n = 1384$) are in favour, provided that donation is for a relative. This figure is only 26% ($n = 409$) if donation is for anyone, whether they are relatives or not. Of the rest, 9% ($n = 138$) indicate that they would not donate a kidney while alive and the remaining 1% ($n = 11$) are unsure. However, when organ donation while alive is considered for a family member, but without specifying that it is kidney donation, the percentages decrease slightly (83%; $n = 1262$) and the number of undecided respondents increases (16%; $n = 237$). Such differences are affected by the respondent's different evaluation of the risk of living donation according to the type of organ. Thus, in kidney donation, 9% ($n = 143$) of respondents believe that this type of donation involves a lot of risk, compared to 75% ($n = 1143$) who believe that a certain amount of risk is involved, 13% ($n = 205$) who are unsure and the remaining 3% ($n = 41$) who believe that there is practically no risk at all. These percentages are different for liver donation where 27% ($n = 408$) believe that there is a lot of risk, compared to 47% ($n = 713$) who believe there is some risk and 24% ($n = 371$) who are unsure.

With respect to the economic incentives, 5% ($n = 67$) report that while alive, they would donate an organ for money, although the vast majority would be influenced by the quantity of money offered. Seven percent ($n = 102$) indicate that they would donate for money depending on the organ to be donated, 8% ($n = 124$) would have to think about it, while the vast majority (81%; $n = 1238$) state that while alive, they would never donate for money.

Bivariate analysis of the factors that affect attitude

An analysis of the variables that affect attitude towards living kidney donation (Table 1) shows that there are no differences according to age ($P = 0.736$), sex ($P = 0.115$), marital status ($P = 0.622$), having descendents ($P = 0.349$) or level of education ($P = 0.379$).

Regarding the place of origin of the respondents, no differences have been found. Thus, among the respondents from the Republic of Ireland, 91% are in favour compared to 91% among those from the United Kingdom ($P = 0.817$). Within the United Kingdom, the differences are not statistically significant, although they are on the borderline of statistical significance ($P = 0.069$). In this respect, the percentage of respondents in favour from the Northern Ireland is 85% compared to 90% from Scotland, 93% from Wales and 91% from England. Additionally, an analysis of the different areas of England shows a more positive attitude among those from central England (97% in the Midlands compared to 91% in the north and 89% in the south; $P = 0.024$) as reflected in Figure 1.

A close relationship has been found between attitude towards cadaveric donation and attitude towards living donation; those who are in favour of cadaveric donation would donate a kidney while still alive in 93% of the cases compared to just 69% among those who are not ($P < 0.001$). An association has also been found with respect to having previous experience with the organ donation and transplantation process (knowing a family member or friend who donated

or needed an organ), in such a way that those who have had a previous experience, although they only comprise 20% of respondents, have a significantly more favourable attitude (96 versus 89%; $P = 0.001$).

Another factor that is favourably associated with attitude towards living donation is participation or being prepared to participate in voluntary-type pro-social activities (92 and 92% respectively versus 86% among those who do not want to participate in these activities; $P = 0.010$).

Regarding social interaction variables, it has been seen that those who have discussed organ donation and transplantation within the family have a more favourable attitude than those who have not (92 versus 86%; $P = 0.036$). In the same way, it is important to find out the attitude of a respondent's partner towards these matters, so the attitude is more favourable when the respondent knows that their partner has a favourable attitude than when he or she does not know their opinion or when their opinion is unfavourable (93 versus 83%; $P = 0.001$).

A respondent's religion is not associated with living kidney donation. Attitude is similar among both those who state that they are Catholics (89%) and those who state that they are Protestant-Anglicans (91%) ($P = 0.865$). However, among those who state that they profess a religion, there is a significant positive association for knowing that their religion is in favour of organ donation and transplantation (94 versus 73%; $P = 0.002$), although only 30% of religious respondents know that their religion has a favourable attitude towards donation.

Concern about possible 'mutilation' after donation also has a considerable influence. In this way, those who are not concerned about this have a more favourable attitude (93 versus 87%; $P < 0.001$). Similarly, the respondent's evaluation of risk from this type of donation is another factor associated with such an attitude, so those who believe there is a lot of risk are in favour in 84% of cases compared to 92% of those who believe that there is a certain risk and 100% of those who believe that there is practically no risk at all ($P < 0.001$).

Multivariate analysis

The multivariate analysis to evaluate the variables with greatest weight affecting attitude towards living kidney donation found that two variables are significantly related to attitude. The first is attitude towards cadaveric organ donation, particularly when this is negative, which reduces the possibility of being in favour of living kidney donation by nearly three times ($OR = 0.309$). The second is the respondent knowing that his or her religion is in favour of organ donation and transplantation ($OR = 1.745$), as seen in Table 2

Discussion

In most of the developed western countries there is a growing tendency towards living kidney donation [14,15]. In Spain, the great development of cadaveric donation has slowed down the development of living donation. However, living donation has been considered as a necessity, because it is ethically acceptable given the low level of surgical risk

Fig. 1 Attitude towards related living kidney donation according to the different countries of the British Isles and the different English regions.

Table 1. Variables affecting attitude towards living donation

Variable	Favourable attitude (<i>n</i> = 1384; 90%)	Unfavourable attitude (<i>n</i> = 149; 10%)	<i>P</i>
Socio-personal variables			
Mean age: 45 ± 14 years of age	45 ± 14	44 ± 14	0.736
Sex			
Male (<i>n</i> = 683)	607 (44%)	76 (51%)	0.115
Female (<i>n</i> = 838)	765 (56%)	73 (49%)	
DK/NA (<i>n</i> = 12)	12	0	
Marital status			
Single (<i>n</i> = 344)	311 (23%)	33 (22%)	0.622
Separated/divorced (<i>n</i> = 153)	142 (10%)	11 (7%)	
Married (<i>n</i> = 994)	893 (65%)	101 (68%)	
Widowed (<i>n</i> = 30)	26 (2%)	4 (3%)	
DK/NA (<i>n</i> = 12)	12	0	
Descendents			
Yes (<i>n</i> = 1065)	966 (70%)	99 (66%)	0.349
No (<i>n</i> = 461)	411 (30%)	50 (34%)	
DK/NA (<i>n</i> = 7)	7	0	
Level of education			
No formal education (<i>n</i> = 118)	107 (12%)	11 (13%)	0.379
Primary (<i>n</i> = 30)	30 (3%)	0	
Secondary (<i>n</i> = 451)	410 (46%)	41 (47%)	
University (<i>n</i> = 371)	336 (38%)	35 (40%)	
DK/NA (<i>n</i> = 563)	501	62	
Country of origin			
United Kingdom (<i>n</i> = 1423)	1284 (93%)	139 (93%)	0.817
Republic of Ireland (<i>n</i> = 110)	100 (7%)	10 (7%)	
Part of United Kingdom ^a			
Northern Ireland (<i>n</i> = 152)	129 (10%)	23 (16%)	0.069
Scotland (<i>n</i> = 324)	290 (23%)	34 (25%)	
Wales (<i>n</i> = 120)	112 (9%)	8 (6%)	
England (<i>n</i> = 827)	753 (59%)	74 (53%)	
Part of England where native ^b			
North (<i>n</i> = 293)	266 (40%)	27 (44%)	0.024
Midlands (<i>n</i> = 157)	152 (23%)	5 (8%)	
South (<i>n</i> = 274)	245 (37%)	29 (48%)	
DK/NA (<i>n</i> = 103)	90	13	
Variables of knowledge about ODT			
Previous experience of ODT			
No (<i>n</i> = 1224)	1089 (79%)	135 (91%)	0.001
Yes (<i>n</i> = 296)	283 (21%)	13 (9%)	
DK/NA (<i>n</i> = 13)	12	1	
Attitude towards cadaveric organ donation			
In favour (<i>n</i> = 1101)	1019 (74%)	82 (55%)	<0.001
Against (<i>n</i> = 116)	80 (6%)	36 (24%)	
Unsure (<i>n</i> = 316)	285 (21%)	31 (21%)	
A belief that one might need a transplant			
Yes (<i>n</i> = 124)	111 (8%)	13 (9%)	0.922
No (<i>n</i> = 216)	194 (14%)	22 (15%)	
Unsure (<i>n</i> = 1190)	1076 (78%)	114 (77%)	
DK/NA (<i>n</i> = 3)	3	0	
Social interaction variables			
Knowledge of partner's attitude			
Yes, favourable (<i>n</i> = 796)	739 (54%)	57 (39%)	0.001
Not known (<i>n</i> = 436)	380 (28%)	56 (38%)	
Yes, against (<i>n</i> = 100)	83 (6%)	17 (12%)	
No partner (<i>n</i> = 193)	175 (13%)	18 (12%)	
DK/NA (<i>n</i> = 8)	7	1	
Family discussion about ODT:			
No (<i>n</i> = 615)	544 (40%)	71 (49%)	0.036
Yes (<i>n</i> = 902)	827 (60%)	75 (51%)	
DK/NA (<i>n</i> = 16)	13	3	
Variables of pro-social activity			
Participation in pro-social activity (voluntary)			
Yes (<i>n</i> = 442)	405 (31%)	37 (26%)	0.010
No, nor will I (<i>n</i> = 377)	325 (25%)	52 (36%)	
No, but I would like to (<i>n</i> = 641)	587 (45%)	54 (38%)	
DK/NA (<i>n</i> = 73)	67	6	
Variables about religion			
Religious attitude			
Catholic (<i>n</i> = 507)	453 (33%)	54 (36%)	0.865

Table 1. (Continued)

Variable	Favourable attitude (<i>n</i> = 1384; 90%)	Unfavourable attitude (<i>n</i> = 149; 10%)	<i>P</i>
Anglican-Protestant (<i>n</i> = 587)	531 (39%)	56 (38%)	0.002
Other religion (<i>n</i> = 66)	59 (4%)	7 (5%)	
Atheist-agnostic (<i>n</i> = 354)	322 (24%)	32 (22%)	
DK/NA (<i>n</i> = 19)	19	0	
Knowledge of the attitude of your Church ^c			
Yes, in favour (<i>n</i> = 346)	326 (32%)	20 (17%)	0.002
Yes, against (<i>n</i> = 11)	8 (1%)	3 (3%)	
Not known (<i>n</i> = 794)	702 (68%)	92 (80%)	
DK/NA (<i>n</i> = 9)	7	2	
Variables of attitude towards living donation			<0.001
Concern about mutilation after donation			
Concern (<i>n</i> = 217)	188 (14%)	29 (20%)	
No concern (<i>n</i> = 1005)	934 (68%)	71 (50%)	
Unsure (<i>n</i> = 289)	246 (18%)	43 (30%)	
DK/NA (<i>n</i> = 22)	16	6	
Evaluation of the risk from living kidney donation			<0.001
A lot (<i>n</i> = 143)	120 (9%)	23 (15%)	
Some (<i>n</i> = 1143)	1054 (76%)	89 (60%)	
Hardly any (<i>n</i> = 41)	41 (3%)	0	
Does not know (<i>n</i> = 205)	168 (12%)	37 (25%)	
DK/NA (<i>n</i> = 1)	1	0	

^aOnly the 1423 respondents from the UK.

^bOnly the 827 respondents from England.

^cFor this cross atheists and agnostics were excluded because they do not have a religion.

ODT = organ donation and transplantation; DK/NA = does not know/no answer.

Table 2. Variables affecting attitude towards living kidney donation. Multivariate logistic regression analysis

Variable	Regression coefficient (β)	Standard error	Odds ratio (confidence interval)	<i>P</i>
Attitude towards cadaveric organ donation:				
Unsure (<i>n</i> = 316)			1	
In favour (<i>n</i> = 1101)	0.172	0.266	1.188 (0.706–1.999)	0.516
Against (<i>n</i> = 116)	−1.176	0.300	0.309 (0.171–0.556)	<0.001
Knowledge of the attitude of one's Church:				
Not known (<i>n</i> = 794)			1	
Yes, in favour (<i>n</i> = 346)	0.557	0.273	1.745 (1.021–2.981)	0.042
Yes, against (<i>n</i> = 11)	−0.444	0.536	0.642 (0.158–2.612)	0.716

for healthy donors, the limited number of organs available and that results are better compared to those with cadaveric organs, in spite of the potential risks that living transplant activity causes for the donor [16–18]. However, in spite of most Spanish transplant centres having a living donor programme, the interest of transplant teams, the favourable attitude of the general public [8] and of health care personnel [9,16,19–21], this type of donation is still minimal. In this respect, it should be taken into account that the living donation process has many factors. For example, we have seen that among Spanish patients, one of the main barriers for this type of donation is the recipients themselves, who are used to hearing about high levels of cadaveric donation and who do not accept living donation from a family member because they consider it to be a 'mutilation', when the organ could be obtained from a cadaveric donor [10]. This situation is different from that of other countries in which cadaveric organ donation rates are lower than Spanish rates [22].

This situation forces us to focus on groups of recipients who are more sympathetic towards this type of donation;

we have seen that they are younger people with a higher level of education [10]. As we found in our study, another favourable subgroup to be taken into account is citizens from the British Isles who are on our transplant waiting list, where 90% would be in favour of donating a kidney while still alive for a family member if it were necessary. Moreover, these citizens come from a society where living donation is more usual and more accepted than it is in Spain. This is an important point if we take into account that we have more and more non-native Spanish patients on the transplant waiting list [2].

Anglo-Saxon societies, such as British, Irish and American, are successfully developing their living kidney donation programmes. What is more, they are considering and carrying out unrelated living donation, which has a considerable amount of support. In this respect, Spital *et al.* [23] in a population study of 1009 North Americans show that the population is to a large extent (24%) in favour of unrelated living donation, data similar to those found in our study. These data have also been described in the Canadian population [24]. Also, it must be taken into account that the

level of acceptance is very high, with rates that are higher than those for cadaveric donation.

As seen in our study, living donation bases its success on the fact that it is a donation for a relative, where emotional factors play a fundamental role. We find that other factors such as economic incentives are not so crucial and could create rejection. In this respect, 81% of our respondents are not in favour of donating for money.

An analysis of factors affecting attitude towards living kidney donation shows that there is a close relationship with attitude towards cadaveric donation [8]. Thus, among those who are not in favour of cadaveric donation, there is a low favourable attitude towards living kidney donation, with an OR of 0.309. Of the other factors involved, the family influence is noteworthy, so respondents have a more favourable attitude when they have previously discussed the subject of organ donation and transplantation within the family unit and have a partner who is in favour of donation. It is therefore important to discuss the issue of organ donation at a family level, a fundamental fact in cadaveric donation and as we also see in living donation [6,25]. Discussing the subject within the family is important in the same way as it is to have known an organ transplant patient or donor among friends or family.

It has also been seen that fear of mutilation or of being left with scars after donation is a factor that causes a negative attitude towards living donation. In this respect we should emphasize that currently in most centres, extraction is carried out by laparoscopy with minimal scars and early discharge, which would reduce such concern. The evaluation of the risk from such donation by the respondent is also related to a negative attitude. These fears indicate a lack of information about living kidney donation among the population. In spite of this, seen from the donor's perspective, living kidney transplantation is a relatively safe procedure. The donor's quality of life is generally comparable to the population norm [4].

Finally, it is worth noting that the respondent's religious activity does not affect attitude, but knowing the attitude of one's religion towards organ donation and transplantation is an important factor. This is important when we consider the promotion of living donation. What is more, taking advantage of the fact that religious authorities are being contacted in order to encourage cadaveric donation, this would be a cost-effective promotion option. Knowing the Church's opinion about organ donation is in fact an independent factor that affects attitude towards living kidney donation.

These favourable attitudes towards living kidney donation suggest that living kidney donation rates will soon increase in Spain, particularly, with the support shown by health care authorities and the Spanish National Transplant Organization. We should start by focusing on the subgroups with the most favourable attitudes in order to raise awareness among the general public about the need for organ donation; about the improvement in quality of life offered to the patient and family instead of dialysis and about the low level of risk involved [10]. This type of donation is a strong potential source of organs that is much greater than that provided by cadaveric organs and it still needs to be developed. Spain is still far from achieving the figures seen

in other countries where even unrelated living donation is being carried out [26].

To conclude, we could say that attitude towards living kidney donation of British and Irish citizens living in south-eastern Spain is very favourable assuming that donation is for a relative. Therefore, the patients on the waiting list of British and Irish origin will be one of the most appropriate groups for promoting living kidney donation, particularly at this time when we want to increase living kidney donation. This attitude towards living donation is very closely related to attitude towards cadaveric donation, family attitude and religious attitude.

Conflict of interest statement. None declared.

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