



## Psychological and Emotional Aspects in Living Donor Kidney Transplantation

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### ABSTRACT

**Background.** The decision to resort to living donor transplantation determines a particular condition characterized by a strong mental and emotional anguish, both for the patients and their families.

The purpose of the study was to correlate the relational dynamics between donor-recipient, donor/recipient couple with the health team, and the family support perceived by the couple with the quality of life 6 months before transplant and 12 months after transplant and compare the data between the 2 time points after participating in the psychotherapy program of counseling about behavioral change.

**Patients and Methods.** Twenty-seven donor and recipient pairs consented to participate. The quality of life was studied through the Complete Form Health Survey (SF-36). All subjects completed a questionnaire that investigated the 3 types of fundamental relationships (donor-recipient, donor/recipient with the health team, and family support perceived by the couple). All participants were involved in an 18-month psychotherapy program in the pre- and post-transplant phase.

**Results.** The quality of the donor-recipient relationship significantly positively influences the subjective perception of psychophysical well-being before and after transplant. Post-transplant family support is crucial in ensuring a good perception of psychological and emotional health in donors and recipients. The relationship with the health team is important in ensuring a good perception of psychophysical health only in recipients after transplant.

**Conclusions.** This study suggests that patients should be assisted by a multidisciplinary health care team and receive continuous support from relatives during the post-transplant adaptation process. This facilitates the donor and recipient postoperative quality of life.

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**T**HE DECISION to resort to living donor transplantation determines a particular condition characterized by a strong mental and emotional anguish, both for the patients and their families. The relationship between donor and recipient generally favors emotional support from the whole family and reduces the emotional burden of the decision. Furthermore, with this type of transplant, a special donor-recipient relationship is created, characterized by mutual support, which is useful to face the delicate situation.

In living donation, the family takes responsibility for the donation. Feelings of guilt, possible need for reparation,

and symbiotic relationships between family members sometimes represent motivations that do not allow the specialist to grant the suitability for transplant [1,2]. The scientific evidence underscores the importance of

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psychological intervention in all phases of the transplantation process and supports the opportunity to guarantee within the team the continuous presence of professionals with specific training. Especially in this delicate sector of organ transplants, the fruitful collaboration between professionals with different scientific skills requires both greater efficiency in demanding treatments and a better guarantee of mental health, with a valid integration between patients, family members, and the doctors themselves [3,4].

The integrated and multidisciplinary care path must therefore provide homogeneous criteria and methods for carrying out standard evaluations for the study of patient autonomy, adherence to therapy, and the adoption of new coping strategies and more adequate lifestyles. Quality of life assessment is one of the essential indicators for monitoring coping strategies acquired by the transplant recipient and/or the donor-recipient couple. In fact, although made up of subjective variables, quality of life is a dimension that varies constantly in relation to the short- and long-term therapeutic results and the expectations of the recipient and the donor [5,6].

The purpose of the study was to correlate the relational dynamics between donor-recipient (D/R Re), donor/recipient couple with the health team (D/R HT), and the family support perceived by the couple (D/R FS) with the perception of their state of health both of the recipients and of the donors 6 months before transplant (T1) and 12 months after transplant (T2) and compare the data of these 3 relational dynamics between T1 and T2 after participating in the psychotherapy program of counseling about behavioral change of all the subjects included in the study.

## PATIENTS AND METHODS

From January 2014 to June 2017, a total of 27 donor and recipient pairs consented to participate and 2 pairs declined. Fourteen of the pairs were parent to adult child, 3 were siblings, and 10 were spousal. Treatment for renal failure for the 27 recipients included 23 undergoing hemodialysis and 4 receiving transplants before renal replacement was necessary. All donors underwent open nephrectomy in this selected group. The donor mean age was 52.4 years (range, 35–67 years); the recipient mean age was 41.3 years (range, 17–70 years). Twenty donors were female and 7 donors were male; 9 recipients were female and 18 were male. No donor suffered a major perioperative complication.

All recipients underwent a standardized immunosuppressive protocol with tacrolimus, mycophenolate mofetil, and steroids and had functioning grafts (Modification of Diet in Renal Disease glomerular filtration rate, 54 mL/min [SD, 9.7]).

The study was approved by the institutional ethics committee and the patients agreed to participate by signing an informed consent.

Psychiatric and psychological evaluation of couples before transplant excluded the presence of a psychiatric disorder or the use of drugs that could influence cognitive and emotional aspects according to diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) both in donors and recipients.

The quality of life was studied through the Complete Form Health Survey (SF-36) that assesses self-perceived psychological

well-being. The SF-36 consists of 8 subscales: vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning, and mental health. Subscales are presented as scores between 0 and 100: the lower the score the greater disability; the higher the score the lesser disability. The validity and reliability of the SF-36 has been confirmed in patients with renal disease [5,7,8]. The considered variables in this study were general health (GH), emotional role functioning (ERF), bodily pain (BP), vitality (V), social functioning (SF), and mental health (MH).

All donors and recipients completed a questionnaire, built ad hoc, at all 2-time points (T1 and T2), that investigated the 3 types of fundamental relationships in the pathway of living kidney transplants (D/R Re, D/R FS, D/R HT). In addition, all participants in the study were involved in an 18-month psychotherapy program that included structured meetings with couples, family members involved, and some members of the treatment team in the pre- and post-transplant phase.

The program was divided into 3 phases, each lasting 6 months. Each phase consisted of 4 meetings a month. The first phase (pretransplant) was dedicated to empathic listening and then providing detailed information on living kidney donation and possible subsequent risks, both in donor and recipient. The second step, which started immediately after transplant, was the investigation of possible alterations in the serenity of the couple, conflict states, and dysfunctional family dynamics (behavior problems). In the third phase, which started 6 months after transplant, we worked on the possibility of creating motivation to change behavior problems, highlighting the commitment to change, for the long-term positive outcome of the living transplant. Based on these assumptions, our study aims to analyze, using Pearson *R* correlation, the variables of the SF-36 with the 3 relational dimensions (quality of the donor-recipient relationship, quality of the relationship between the donor/recipient couple with the caring team and perceived family support) both in the visit 6 months before transplant (T1) and in the follow-up visit 12 months after transplant (T2). Moreover, possible modifications of these relational dimensions through the participation in a psychotherapeutic program on counseling about behavioral change were investigated.

Paired samples *t* test was used to evaluate significant differences of 3 relational dimensions between T1 and T2. *P* value of less than .05 was considered statistically significant.

Pearson *R* correlation test and *t* test were performed using the Statistical Package for Social Sciences (SPSS Inc, Version 17.0, Chicago, Ill, United States).

## RESULTS

### Six Months Before Transplant (T1) Donor-Recipient Couple

In the phase preceding transplant, the quality of the donor-recipient relationship positively influences the subjective perception of psychophysical well-being, both in the role of donor and the role of recipient. As far as the donor is concerned, if there are conditions that can endanger this relationship (fears and apprehensions regarding a lifestyle of the recipient that could compromise the functionality of the organ), the general state of health is compromised. Specifically, the results showed that a quality of the relationship defined as unsatisfactory or critical correlates with a decrease in general health (D/R Re-GH  $R = -0.212$ ;

$P < .03$ ) and an increase in the limitations in the emotional role (D/R Re-ERF  $R = .317$ ;  $P < .02$ ).

Also with regard to the recipient, the perceived psychophysical well-being is proportional to the quality of the relationship with the donor. Specifically, the more the quality of the donor-recipient relationship is defined as unsatisfactory or critical, the more general health decreases (D/R Re-GH  $R = -0.295$ ;  $P < .02$ ) and there are limitations in the emotional role (D/R Re-ERF  $R = -0.256$ ;  $P < .04$ ). As for family support, the results vary in the role of donor and recipient. Regarding the donor, in the pretransplant phase, the intrafamily dynamics do not seem to interfere with the perception of the psychophysical well-being of the donor. In fact, there are no significant correlations between family support and the general state of health perceived (D/R FS-GH  $R = -0.012$ ;  $P > .06$ ). In the recipient's lifestyle, good family support is decisive and correlates positively with a better perception of quality of life. In particular, the more the family support is defined as inadequate, the greater the perception of physical pain (D/R FS-BP  $R = -0.382$ ;  $P < .03$ ), the more vitality is reduced (D/R FS-V  $R = -0.373$ ;  $P < .03$ ), and the time dedicated to activities social is reduced (D/R FS-SF  $R = -0.542$ ;  $P < .01$ ). The relationship with the health team is also an important variable in the self-perception of psychophysical well-being both in the donor and in the recipient. For both, an adequate relationship with the team creates trust and enhances the positive expectations toward a successful transplant. On the contrary, for both roles, a relationship with the team perceived as inadequate or unsatisfactory increases the state of apprehension for the maintenance of a general good health both in the donor (D/R HT-GH  $R = -0.326$ ;  $P < .04$ ) and in the recipient (D/R HT-GH  $R = -0.263$ ;  $P < .03$ ), increases the perception of physical pain both in the donor (D/R HT-BP  $R = -0.287$ ;  $P < .04$ ) and the recipient (D/R HT-BP  $R = -0.365$ ;  $P < .02$ ), and reduces the perception of a good mental health only in the recipient (D/R HT-MH  $R = -0.208$ ;  $P < .04$ ).

#### Twelve Months Post Transplant (T2) Donor-Recipient Couple

At 12 months post transplant, the quality of the donor-recipient relationship does not correlate significantly with general health (D/R Re-GH  $R = -0.092$ ;  $P > .06$ ) nor with the emotional role (D/R Re-ERF  $R = -0.013$ ;  $P > .06$ ) regarding the donors. In contrast, in recipients, the quality of the relationship is defined as unsatisfactory or critical,

general health improves (D/R Re-GH  $R = 0.249$   $P < .04$ ), and the limitations in the emotional role are reduced (D/R Re-ERF  $R = 0.291$ ;  $P < .03$ ). This positive correlation, which may seem paradoxical, can be explained by a lower emotional involvement, created a year after transplant, in the donor-recipient relationship. By improving the perception of their emotional role, the recipients feel more stable and independent emotionally, consequently reducing any guilty feelings toward the donor. Post-transplant family support is crucial in ensuring a good perception of psychological and emotional health in both donors and recipients. Specifically in the donors, the more the family support is reported as inadequate, the more the social activities are reduced (D/R FS-SF  $R = -0.350$ ). In the recipients, the more the family support is reported as inadequate, the more a good perception of mental health is reduced (D/R FS-MH  $R = -0.631$ ;  $P < .01$ ) and the limitations in the emotional role are increased (D/R FS-ERF  $R = -0.545$ ;  $P < .01$ ). Regarding the relationship with the health team, a positive correlation emerges between the relationship with the health team and perceived mental health (D/R HT-MH  $R = 0.561$ ;  $P < .01$ ) in the role of the recipient. The recipients who define themselves as more autonomous in the relationship with the health care workers perceive a state of good psychological balance and feel the dimension of mental health improved.

In the role of donor, however, the relationship with the health team does not seem to be a decisive factor in ensuring a good quality of life post transplant. The correlation between the relationship with the health team, general health (D/R HT-GH  $R = 0.052$ ;  $P > .07$ ), and mental health does not appear significant (D/R HT-MH  $R = -0.031$ ;  $P > .07$ ).

The comparison of relational dimensions in the donor-receiving couple before (T1) and after transplant (T2) are shown in Table 1.

The comparison of the data showed a statistically significant improvement in the quality of the donor-recipient relationship at 12 months after the transplant, while the data concerning changes in the family support and in the relationship with the treating team post transplant were not significant.

## DISCUSSION

It is important to survey the relationship between a recipient and a potential donor before transplant to avoid relational

**Table 1. Comparison of Relational Dimensions in the Donor-Receiving Couple, Before and After Transplant**

Relational Dimensions	Donor/Recipient Couple				<i>t</i> or $\chi^2$ ( <i>df</i> )	<i>P</i> Value
	6 Months Before Transplant (T1)		12 Months Post Transplant (T2)			
	Mean	SD	Mean	SD		
Donor-recipient relationship (D/R Re)	1.31	0.47	2.40	0.96	4.28 (30)	>.001*
Family support (D/R FS)	1.86	0.71	2.09	0.70	0.87 (31)	.39
Relationship with health team (D/R HT)	1.57	0.50	1.80	0.63	1.08 (29)	.29

\* $P < .05$ .

conflicts. In fact, the dynamics of the donor-recipient relationship can be characterized by opposite variables: offers and rejections, cautions and apprehensions that can create emotional instability, and anxiety and somatization in both roles [9,10]. Regarding the living transplant, if on the one hand this determines a significant improvement in the expectations and quality of life in the couple, it is not possible to exclude adaptation difficulties, psychopathological disorders, compliance problems, and adherence to therapeutic protocols, especially in the recipient [11–13].

Deepening the relational dynamics and guaranteeing a psychiatric and psychological follow-up to the donor-recipient couples therefore appears to be an essential element for the successful outcome of the transplant and the donation that lasts over time.

For a better post-transplant rehabilitation and because of the evident risks of psychopathology, the development of interdisciplinary interventions is one of the socio-health and psychotherapeutic tasks to be programmed, without which the adaptation following transplant could be difficult and have inevitable repercussions on quality of life of these subjects [14–16]. Furthermore, ensuring adequate family support in the donor-recipient couple is also essential for maintaining a good state of psychological and emotional well-being in the post-transplant phase [17,18].

This study suggests that patients should be assisted by a multidisciplinary health care team and receive continuous support from relatives during the post-transplant adaptation process. This facilitates donor and recipient postoperative quality of life.

Psychotherapy, which involves structured meetings with donor-recipient couples, family members involved, and some members of the caring team, has a very important function in this area as it helps the couple to confront reality, giving adequate awareness to the motivations that lead to donation and transplant [19–21].

In this sense, working in an interdisciplinary group allows us to experience how the goal of the whole team is to create an accompaniment not only of the patient, but also of the family, and to ensure that the story of donation and transplant takes place in a climate of serenity, sharing, security, and trust to protect all the persons involved, including the health team [4,22].

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