Nonverbal Communication and Psychopathology in Kidney Transplant Recipients

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ABSTRACT

Transplant recipients have difficulty expressing, identifying, and describing their emotional experiences. The Machover human figure test allows us to bring out the deepest contents of a patient's personality, which are normally hidden and not explained to structured quantitative tests. The study analyzed possible situations of distress and possible symptoms of psychopathology in kidney transplant recipients, emerged from the projective test of the human figure and not easily verbalized to the common standardized tests.

The sample included 80 kidney transplant patients (51 men and 29 women; mean age, 47.74 [SD, 12.39] years) during follow-up visits at 12 months after transplant. The Machover test was used to evaluate body image, affective aspects, and personality variables by projective method; the Symptom Checklist-90-R was used for the evaluation of possible psychopathology, and the 36-Item Short Form Health Survey was used for the assessment of perceived quality of life.

Results.   showed that the more anxiety there is in the human figure test, the less somatization dimensions (ANX/SOM $R = -331$, $P < .05$), depression (ANX/DEP $R = -326$, $P < .05$), and the global index of psychic symptomatology (ANX/GSI $R = -367$, $P < .05$) of the Symptom Checklist-90-R are present.

This research has confirmed the hypothesis that the spontaneous graphic production of the recipients, through the projective methods, allows them to identify and deepen their psychological contents and to activate and maintain a good psychophysical balance post transplant.

RECENT literature data have highlighted the presence of clinical personality patterns in kidney transplant recipients and, in specific stress conditions, possible presence of symptomatologic variables and psychic disorder [1,2]. Pistorio et al (2013) highlighted the prevalence of obsessive-compulsive personality traits in male kidney transplant recipients, characterized by exaggerated mental and interpersonal control, to the detriment of flexibility and openness in communicating their needs [3]. The transplant recipients have difficulty expressing, identifying, and describing their emotional experiences, transforming them into bodily symptoms (eg, somatization) for the underlying physiological activation; in the attempt to regulate the affectivity, these recipients would perform erroneous and dysfunctional behaviors regarding the management of the post-transplant path. In this regard, data emerged concerning alexithymia of transplant recipients, characterized by the difficulty of elaborating and communicating its emotional contents [4]. Interpersonal vulnerability and thoughts of alertness and apprehension about one's state of health affect the sense

of personal self-efficacy, reducing the ability to adequately address and manage possible postkidney transplant complications [5,6]. A better understanding of the perceived pre- and post-transplant difficulties, associated with the different aspects of living a chronic disease, helps to understand what possible psychotherapeutic pathways will improve the outcomes of the disease [2].

Specifically, the projective tests allow us to bring out the deepest contents of a recipient's personality, which are normally hidden and not explained to structured quantitative tests, as they are based on the psychological mechanism of projection, a defense process that allows the recipients to externalize their inner experiences [7,8]. In kidney transplant recipients, useful information can be drawn from the Machover human figure test to understand the complex processes of conception and organization and possible psychopathology. The ambiguity of the stimulus delivery makes possible the projection of one's own moods (dysphoria and irritability), somatizations, the identification of particularly anxiety-inducing themes, and any conflicts that are difficult to express with other evaluation protocols [9–11].

Starting from these premises, the objective of the study was to analyze and understand possible situations of distress and possible symptoms of psychopathology in kidney transplant recipients, emerged from the projective test of the human figure and not easily verbalized to the common standardized tests.

PATIENTS AND METHODS

For the present study, the sample included 80 kidney transplant patients (51 men and 29 women; mean age, 47.74 [SD, 12.39] years) recruited at the Organ Transplant Unit (University Hospital of Catania) during follow-up visits 12 months after transplant, from December 2017 to September 2018. All the subjects participated in the study voluntarily. Regarding education, 35 patients (43.75%) reported having a high school diploma or degree, and 45 patients (56.25%) were ranked as having middle school education or lower. Regarding the duration of pretransplant dialysis treatment, only 11.25% had undergone hemodialysis for more than 3 years, while the remaining 88.75% had a 1- to 3-year treatment. All patients had functioning grafts (mean serum creatinine, 1.7 mg/dL), and they underwent a standardized immunosuppressive protocol with tacrolimus, mycophenolate mofetil, and steroids. Patient characteristics at enrollment are summarized in Table 1.

The psychiatric examination excluded the presence of a psychiatric disorder or the use of drugs that could influence cognitive and emotional aspects [12].

Psychological and psychodiagnostic evaluation involved the use of the following tools: the Machover test to evaluate body image, affective aspects, and personality variables by projective method; the Symptom Checklist-90-R (SCL-90-R) for the evaluation of possible psychopathology; and the 36-Item Short Form Health Survey (SF-36) for the assessment of perceived quality of life.

Machover Test

The test of the drawing of the human figure as a projective test can also be applied to adult patients. The application technique is very

Table 1. Characteristics of Patients Included in the Study

Age, mean (SD), range in y	47.74 (12.39)
Male sex, %	63.75
Donor age, mean (SD), y	58 (11.47)
Donor source, %	
Living donor	16.25
Deceased donor	83.75
BMI, mean (SD)	27.3 (3.2)
Education, %	
High school diploma or degree	43.75
Middle school or lower	56.25
Length prior dialysis treatment, %	
> 3 y	11.25
1-3 y	88.75
Serum creatinine, mean (SD), mg/dL	1.70 (0.06)
mGFR, mean (SD), mL/min/1.73 m^2	62 (15)
Time post transplant, mean (SD), y	6.38 (1.22)
Original nephrologic disease, %	
Hypertensive nephrosclerosis	21
Diabetic nephropathy	8
Chronic glomerulonephritis	42.50
Polycystic kidney	11.50
Unknown	17

BMI, body mass index (calculated as weight in kilograms divided by height in meters squared); mGFR, measured glomerular filtration rate.

simple. A sheet of paper (preferably 21 × 27 cm), a medium-hard pencil, and an eraser is presented to the patient and is called "drawing a human figure." The important thing is to give instructions that leave the greatest possible freedom for projection. Subsequently, the various elements that emerge from the design of the subject can be interpreted. In the analysis of the drawing we take into account various data: formal (size, position, attitude, etc), graphologic (stretch, pressure), and content (different parts of the body and their details) [13–15].

For the present study, the significant elements emerged from the drawing have been grouped into some intrapsychic dimensions:

- Aggressiveness (AGG): for example, long fingers to branches, arms very far from the body, teeth representation
- Anxiety and insecurity (ANX): for example, presence of shading, design dimension too small and top position, weak stretch
- Paranoia (PAR): for example, big eyes, marked ears, hidden hands, omissions of the hands and/or arms
- Emotional fragility (EF): for example, schematic figure, eyes closed or without pupils, arms tight to the body

The Machover drawings of subjects illustrating extremes of AGG, ANX, PAR, and EF are shown in Fig 1.

Symptom Checklist-90-R

The SCL-90-R is a relatively brief self-report psychometric instrument (questionnaire) published by the Clinical Assessment division of the Pearson Assessment and Information group. It is one of the most widely used measures of psychological distress in clinical practice and research, and it is designed to evaluate eventual symptoms of psychopathology. It consists of 90 items and takes 12 to 15 minutes to administer. The primary symptom dimensions that are assessed are somatization (SOM), obsessive-compulsive (OBS), interpersonal sensitivity (INT), depression (DEP), anxiety (ANX), hostility (HOS), phobic anxiety (PHOB), and paranoia (PAR). The
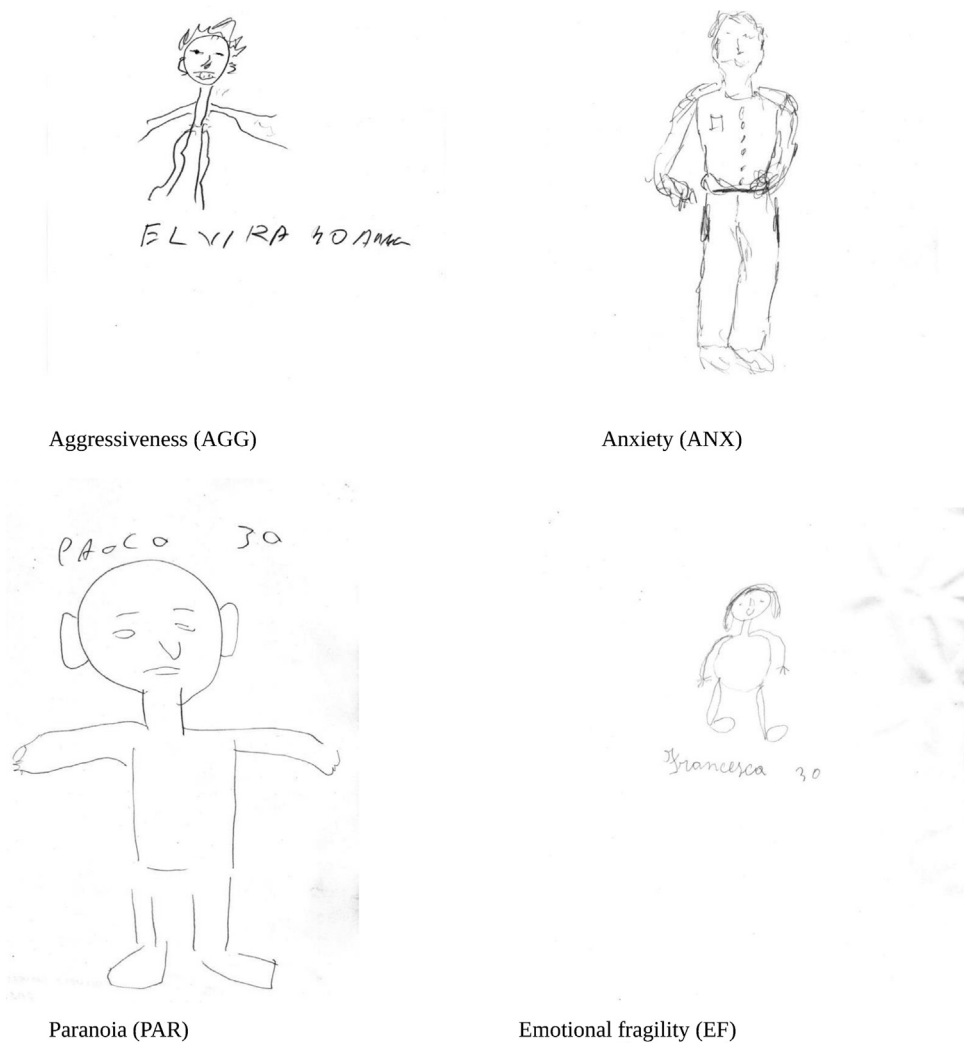
Aggressiveness (AGG)

Anxiety (ANX)

Paranoia (PAR)

Emotional fragility (EF)

Figure 1. Machover drawings of subjects illustrating extremis of AGG, ANX, PAR and EF. Aggressiveness (AGG) Anxiety (ANX) .Paranoia (PAR) Emotional fragility (EF).

SCL-90-R also allows to evaluate the Global Score Index (GSI), a global index of psychic symptomatology, represented by the sum of all the items with a positive response reported by the patient. A high number of studies have been conducted demonstrating the reliability, validity, and use of this instrument [16,17].

36-Item Short Form Health Survey

The SF-36, a patient-reported survey of patient health consists of 8 subscales presented as scores from 0 to 100: the lower the score, the more disability, and the higher the score, the less disability. The considered variables in this study were the 2 mental and physical health indexes (MHI and PHI). The validity and reliability of SF-36 has been confirmed in patients with end-stage renal disease and in kidney transplant recipients [18,19].

Data were examined for normality and transformed if necessary. Pearson R correlation test was performed using SPSS, Version 17 (IBM, Armonk, NY, United States). A P value of less than .05 was considered statistically significant.

RESULTS

Regarding the qualitative analysis of the data, the following variables were evaluated: the expression of the face drawn and the posture of the human figure (static or moving figure) index of adaptation and psychic dynamism. Regarding facial expression, 36.3% of subjects expressed a happy expression, 35% a sad expression, 25% an angry expression, and 3.8% no expression. As for adaptation and psychic dynamism, 81.2% drew a static and rigid figure; 18.8% presented a figure in movement, an expression of a good adaptation. Regarding the intrapsychic variables detected by the drawing of the human figure, 47.5% of the sample showed aggression, 37.5% showed anxiety, 38.75% showed paranoia, and 40% showed emotional fragility.

The results of the correlations, performed by means of the Pearson coefficient R, between the dimensions of the Machover test, the symptoms emerged at the SCL-90-R,

Table 2. Correlation by Pearson *R* Coefficient Between SCL-90-R, SF-36, and Variables of Machover Test

	SOM	DEP	ANX	PAR	PHOB	OBS	HOS	INT	GSI	PHI	MHI
AGG	0.298	0.176	0.118	0.103	0.292	0.244	0.023	0.023	0.198	0.033	−0.066
ANX	−0.331*	−0.326*	−0.169	−0.142	−0.268	−0.116	−0.309	−0.002	−0.367*	0.076	0.246*
PAR	0.245	0.351*	0.170	0.094	0.058	0.196	0.127	0.046	0.373*	−0.022	−0.080
EF	0.003	0.066	−0.108	−0.156	0.047	0.035	−0.082	−0.110	−0.013	0.125	0.077

AGG, aggressiveness; ANX, anxiety; DEP, depression; EF, emotional fragility; GSI, global score index; INT, interpersonal sensitivity; HOS, hostility; MHI, mental health index; OBS, obsessive-compulsive; PAR, paranoia; PHI, physical health index; PHOB, phobic anxiety; SCL-90-R, Symptom Checklist-90-R; SF-36, 36-Item Short Form Health Survey; SOM, somatization.

*Significant correlation ($P < .05$) by Pearson coefficient.

and the physical and mental health indices of the SF 36 are shown in Table 2. Some significant negative correlations emerged between the anxiety dimension of the Machover test and the symptoms of somatization and depression of the SCL-90-R. In particular, the more anxiety there is in the human figure test, the less somatization dimensions (ANX/SOM $R = −331$, $P < .05$), depression (ANX/DEP $R = −326$, $P < .05$), and global index of psychic symptomatology (ANX/GSI $R = −367$, $P < .05$) of the SCL-90-R are present. Specifically, the results at the Machover projective test have made it possible to significantly identify avoidance, inadequacy, and constant voltage aspects not shown in the SCL-90-R. On the other hand, the paranoia dimension of the Machover test and the symptom depression of the SCL-90-R are positively correlated. In fact, where the paranoia dimension to the projective test of Machover emerged, there was a greater presence of the symptom depression (PAR/DEP $R = 0.351$, $P < .05$) and the global index of psychic symptomatology (PAR/GSI $R = 0.373$, $P < .05$) at SCL-90-R. In particular, the subject with a paranoid personality who is wary and suspicious has difficulty relating to others and often lives in a depressive situation with a sense of loneliness and isolation. Regarding the correlations with the physical and mental health indices of the SF-36, no significant positive correlations emerge with the intrapsychic variables represented by the Machover test. Only the variable "anxiety" that emerged from the design of the human figure correlates with a positive perception of one's own psychic life (ANX/MHI $R = 0.246$, $P < .05$).

Finally, a logistic regression was applied, including the odds ratio, to determine the significance of the associations between age, length prior dialysis treatment, time post transplant (predictor variables), and intrapsychic dimensions of Machover test: aggressiveness, anxiety, paranoia, and emotional fragility (outcome variables). Results are shown in Table 3. Only the association between the time post transplant and the intrapsychic dimension of paranoia was significant ($P \leq .001$). This result could be connected to the fact that the more years after the transplant, the more the recipient feels the "threat" of possible organ loss and the inevitable resumption of the dialysis treatment.

DISCUSSION

Kidney transplant leads to a noticeable improvement in expectations and quality of life even if it is not possible to exclude adaptation difficulties, psychopathologic disorders, problems of compliance, and adherence to therapeutic protocols. The state of mental illness of transplant patients is expressed verbally with difficulty, and a good therapeutic relationship with the transplantation team is not always sufficient to make them communicate their psychological contents [1,20, 21].

This research has confirmed the hypothesis that the spontaneous graphic production of the recipients, through the projective methods, allows them to identify and deepen their psychological contents and to activate and maintain a good psychophysical balance post transplant. The emotional impact of the transplant operation can constitute a traumatic event that interrupts the sense of continuity and personal integrity, eliciting intense emotions. Knowing and defining the emotional contents of the patients who have experienced transplant is a necessary condition to manage

Table 3. Logistic Regression Between Intrapsychic Dimensions of Machover Test (Outcome Variables) and Age, Length of Prior Dialysis Treatment, and Time Post Transplant (Predictor Variables), Including Odd Ratio.

	β (SE)	95% CI for Odds Ratio Lower	Odds Ratio	95% CI for Odds Ratio Upper	P Value
Aggressiveness vs no aggressiveness					
Age	0.02 (0.02)	0.98	1.02	1.06	.34
Length of prior dialysis treatment	0.15 (0.13)	0.91	1.17	1.49	.22
Time post transplant, y	−0.38 (0.21)	0.45	0.68	1.03	.07
Anxiety vs no anxiety					
Age	0.00 (0.02)	0.96	1.00	1.03	.82
Length of prior dialysis treatment	−0.30 (0.14)	0.56	0.74	0.98	.04
Time post transplant, y	0.04 (0.21)	0.70	1.04	1.55	.85
Paranoia vs no paranoia					
Age	−0.03 (0.02)	0.93	0.97	1.01	.14
Length of prior dialysis treatment	−0.09 (0.13)	0.71	0.92	1.18	.497
Time post transplant, y	0.91 (0.27)	1.45	2.48	4.23	.001
Emot fragility vs no emot fragility					
Age	−0.01 (0.02)	0.96	0.99	1.03	.76
Length of prior dialysis treatment	−0.05 (0.12)	0.75	0.95	1.20	.67
Time post transplant, y	0.12 (0.20)	0.77	1.13	1.66	.54

CI, confidence interval.

any psychological problems that, if not identified, can lead to the risk of psychopathologic and psychosocial illness [22]. An in-depth knowledge of the psychic experience of the transplant patient is a fundamental and necessary step for the management of immunosuppressive therapy for the maintenance of an adequate lifestyle post transplant and therefore for an adequate therapeutic adherence [14]. According to recent literature, patients who receive a protocol of psychotherapeutic support before transplant and subsequently during post-transplant follow-up improve treatment compliance and recover significant levels of quality of life both for physical and emotional aspects [21]. For better post-transplant rehabilitation and by virtue of the evident risks of psychopathology, the development of multidisciplinary interventions and in-depth study of the emotional themes of the transplant recipient is one of the tasks to be programed, without which adaptation following transplant could be difficult and with inevitable repercussions on the quality of life of these subjects [1].

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