



Facial Tissues Donation and Facial Transplantation: Knowledge Evaluation of the Population about this New Procedure

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Authors' contributions

This work was carried out in collaboration between both authors. Author DCMDR designed the study, wrote the protocol and the first draft of the manuscript. Author ABN managed the literature searches and analyses the study performed. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/BJMMR/2016/21638

Editor(s):

(1) Medhat Emil Habib, Department of Plastic and Reconstructive Surgery, Zayed Military Hospital, Abu Dhabi, UAE.

Reviewers:

(1) Sebastian Torres, Santa Rita Clinic, Italy.
(2) Shubhangi V. Agale, Grant Medical College & Sir JJ Group of Hospitals, Mumbai, India.
Complete Peer review History: <http://sciencedomain.org/review-history/12132>

Original Research Article

Received 27th August 2015
Accepted 15th October 2015
Published 7th November 2015

ABSTRACT

Background: Face transplantation is a complex procedure on a medical, moral and psychological point of view. Therefore, provides many benefits in improving aesthetic function and social integration. We evaluate the knowledge of the population about the donation and transplantation of facial tissues.

Methods: A questionnaire was administered to 430 people, randomly selected, with twenty-one years of age or older, collected in all regions of the city of Botucatu. The evaluation of the objective responses in the different issues was accomplished by establishing a frequency distribution data. The descriptive questions were analyzed by reading them.

Results: Between participants, 65.8% did not have knowledge about the possibility of facial tissue donation, however, 90.1% of them knows that face transplantation is indicated in cases of facial deformities, 51.7% are able to donate tissues of the face, 67.7% are not aware how their families would react against its manifestation in life to donate face tissues, 84% have no knowledge about the implications on the funeral ceremonies. Of participants, 359 would accept to live with another face if necessary and 375 would support any family members in being a donor.

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Conclusion: The population showed a limited knowledge about the donation and transplantation of face tissues, but would accept to live with it if necessary and support family members in being donors. They considered the donation an important act and required more information on the subject.

Keywords: Facial transplantation; donation.

1. INTRODUCTION

The face transplant is a major breakthrough in reconstructive surgery. It is a surgical procedure in which certain structures of the face are transplanted from one person into another, providing huge benefits in terms of improved aesthetic, functionality and social integration. Surgery is daring on the medical point of view, moral and psychologically [1].

The challenges to overcome in face transplantation depend on the understanding of the technical and psychological issues [2]. Research on the psychological aspects of face transplantation, issues on identity and appearance changes, adaptations and the intake of immunosuppressant's are some points to be understood and addressed before the process become a clinical option.

Possible indications for a face transplant include people with severe facial deformities as a result of tumors excision, severe trauma, congenital malformations and sequelae of aesthetic treatments. People seek surgical correction motivated by the possibility to obtain the best aesthetic and functional results, thereby providing greater social integration. The face transplant raises ethical questions because it is linked to the fact that the face is a peculiar element of the human anatomy, strongly linked to the idea of an "identity", inalienable for each patient. Conducting a facial transplant is, before anything, allowing patients to recover their aesthetic dimension and social integration.

Given the importance of face transplant in the rehabilitation of patients with extreme facial deformities, we conducted the present study in order to evaluate the population knowledge of the city of Botucatu in donation and transplantation of facial tissues.

2. OBJECTIVE

Assess the knowledge and opinion of the population about donation and transplantation of facial tissues.

3. METHODS

From August 2011 until October 2012 a questionnaire was applied to 430 persons, randomly selected, with age above twenty-one years. A systematic collection was followed in all regions (north, south, central, eastern and west) of the city of Botucatu, state of São Paulo.

Participants were free to answer a standard questionnaire containing 26 objective and 4 descriptive questions, based on a questionnaire used by the Organs and Tissues Procurement Organization (questions A, B, C, D, E, F, G, H, P; Q, R, S, T, U, V, X, W, Y, Z, AA, AB, AC and AD) and questions designed to determine the degree of knowledge and opinion of the population about the donation and transplantation of facial tissues (questions I, J, K, L, M, N and O).

Considering the minimum number of 80 persons by region, 83, 84, 91, 82 and 90 persons answered the questionnaire respectively in the north, south, central, east and west regions. There was no interference or suggestive explanation by the interviewer, with all participants freely answering the questions, thus ensuring the reliability of the information generated and the privacy of the research.

3.1 Questionnaire

- A. Gender
- B. What is your age?
- C. Did you attend a school? (Which graduation)
- D. Did you participate in conversations about organ donation with family or friends?
 - (1) No, I never talked or thought about it.
 - (2) Yes, with family and friends.
 - (3) Yes, only with family.
 - (4) Yes, only with friends.
- E. Has someone expressed willingness to be a donor in your family?
 - (1) Yes, I.
 - (2) Yes, I and other family members.
 - (3) Yes, all expressed.
 - (4) No, we do not want to be donors.

- (5) I do not want to be a donor but have family members that want.
- F.** Do you want to donate your organs? (Yes / No / I don't know)
- G.** Why wouldn't you donate your organs?
- Comment: _____
- H.** Is there any organ that you don't want donate? (describe)
- I.** What degree of knowledge do you have about donation of facial tissues? (describe)
- J.** In what situation is a face transplantation indicated?
- (1) Severe facial deformities (tumors, burns, trauma, congenital malformation)
 - (2) Aesthetic Treatments.
 - (3) Change of identity
 - (4) Other.
- K.** Would you donate facial tissues? (Yes/ No)
- L.** Are you aware about how your family would react in a situation when you state in life the desire to be a donor of facial tissues? (Yes / No)
- M.** Are you aware about the implications of facial tissue donation on the funeral ceremonies for your family? (without a face) (Yes / No)
- N.** What is your opinion about living with another face?
- Comment: _____
- O.** If someone in your family desires a willingness to donate facial tissues, how would you react?
- Comment: _____
- P.** Did you or somebody in your family already officiated the desire of being a donor and how?
- (1) Yes, in the identity or driver's license
 - (2) Yes, verbally warned the family
 - (3) Yes, has written
 - (4) Only commented but not officially
 - (5) I don't know.
- Q.** Who were officially notified about this desire? (describe)
- R.** Independent of your position in being or not a donor, in which situations can the organ donation be allowed?
- (1) When there is brain death
 - (2) When in a coma
 - (3) When the heart stops beating
 - (4) I don't know
 - (5) Other
- S.** In which situations a person cannot donate their organs?
- (1) Delay of organ removal
 - (2) AIDS
 - (3) Any diseases at the time of death
 - (4) I don't know
 - (5) Other
- T.** Has someone donated organs in your family? (Yes / No)
- U.** Were there any difficulties? (Yes / No)
- V.** Would you authorize organ donation of someone in your family?
- (1) Yes, even if my relative did not express in life the desire of being a donor.
 - (2) Yes, but only if my relative expressed in life the desire of being a donor
 - (3) Yes, even though my relative did not want to be a donor
 - (4) No, if my relative has not expressed in life the desire of being a donor
 - (5) Not against my relative desire.
 - (6) I don't know.
- W.** Regardless of your position, would you know how to proceed if you had to provide an authorization for organ donation from a friend or family member?
- (1) Yes
 - (2) No, but I would ask a doctor or hospital
 - (3) No, I don't know what to do.
- X.** Do you know that there are some donations that can be made in life? (Yes / No)
- Y.** Which organs?
- (1) Kidney
 - (2) Part of the liver
 - (3) Bone marrow
 - (4) Other
- Z.** Do you practice any religion, or attend at least 1 time per month? (describe)
- AA.** Which religion? (describe)
- AB.** What is the monthly income of your family (in US\$)?
- AC.** What is your address?
- AD.** Would you like to make some additional comments about organ donation?

3.2 Statistical

The study of the objective responses of all participants in the different issues was accomplished by establishing a frequency distribution data, and analyzed by chi square (χ) for each sample. The analysis of the responses were discussed at the 5% level of significance and considered significant when p value was <0.05 , showing that the distribution is not uniform, but uniformly distributed within the

classes. The answers to the descriptive questions were analyzed by reading them.

4. RESULTS

Of the participants, 60.2 percent were female and 39.8% were male ($p < 0.01$) with age range between 21 and 60 years. Of them, 57% with 21 and 44 years and 43% with more than 44 years, with Middle and High school education in 38.6% and 33.5% respectively.

Regarding discussions about organs donation, 38.1% never approached the subject, 39.6% already discussed with family and friends and 17.9% only with the family.

58.9% of the participants expressed a willingness to be a donor. However, in conversations with family members, only the participant expressed a willingness to be a donor in 21.9% while in 24.2% both the participant and the family members.

About the question G, only 108 responded to this question and replied that the reason was the lack of confidence in the team who perform the legal procedures involved in the donation and organ harvesting, or simply claim that they wish to be buried within their bodies.

Of the participants, 48.3% don't donate facial tissues and of these, 65.8% have no knowledge regarding the donation of these tissues and 24% possess little knowledge ($p < 0.001$). Those who expressed a willingness to be a donor, 31.8% has knowledge about the reaction of the family in front of their demonstration to donate facial tissues.

Regarding the situations in which the face transplant is indicated, 90.1% answered that would be indicated in severe facial deformities like tumors, burns or trauma and 4.3% to changes of identity or aesthetic purposes.

When asked about the implications on donation of facial tissues on the funeral ceremonial, 84% have no knowledge about this issue ($p < 0.001$).

In relation to question N, 359 participants demonstrated acceptance compared to coexist with other cheek, although consider this a bizarre situation or strange. In relation to the issue O, 375 participants demonstrated acceptance and respect the will of each one.

Asked about how they officiated the willingness in be a donor, 39.8% just commented with their

families but not officiated it by other means, with 60.7% stated that the donation can only be achieved when there is a brain dead and 29.8% have no knowledge when a person cannot be a donor.

Of the participants, 8.7% reported cases of organ donation in their family and in 5.6% occurred difficulties at the time of donation.

Among the participants, 14.1% would authorize organ donation of his relative regardless of consent or not; 29.9% donate organs, but only with the consent; 4.2% authorize the donation even without consent; 36.2% did not allow without consent; 6.4% did not authorize even with consent and 8.9% did not know the answer.

At the time of the decision to donate organs, 12.4% have knowledge about the procedures to be adopted; 55.7% has no knowledge, but would ask a doctor about and 31.8% don't know what arrangements to be adopted ($p < 0.001$). Regarding the donations of organs that can be performed in his lifetime, 87.1% have knowledge of these donations ($p < 0.001$).

For the issue AC, only 111 participants responded to this question. Commented that require additional information regarding the donation process and collection of organs. Besides, suggest greater disclosure of this process.

5. DISCUSSION

The transplantation of composite tissue aiming to improve the quality of life has recently been reported in humans, showing great potential in raising the self esteem of the patients. Pormahac & Aflaki [3] emphasized the necessity of a multidisciplinary approach for the success of this type of transplant, and prophesied a gradual increase of functional transplants until the tissue engineering becomes a reality.

In this context, the face transplantation appears as a call to reflection on science, philosophy and religion as a human activity necessary to the dignity of a person [4].

Fourteen face transplants have been reported in the world. The pioneers of these transplants were Drs. Dubernard, Devauchelle, Guo, Lantieri and Siemionow (HUI-CHOU, 2010) [5], with 86.6% of the surgeries well succeeded.

There are many controversies regarding the face transplant. Risks and benefits are being studied,

as this new modality is still considered an experimental procedure and therefore, liable to appropriate ethical evaluations [6].

There are around 250,000 adults and children who are severely disfigured in the United Kingdom, many of them rarely leave their homes and find difficulties to contact other people [6].

Probably in the near future, there will be a greater demand for this surgery, related to the increase in motorcycle accidents, severe burns and traumas, wounded soldiers and sequelae after tumor removals. There is a strong indication that these events will result in severe face traumas, with a possible indication for future surgical correction.

Based on targeted issues, this study enabled to demonstrate the knowledge and belief of the population on facial tissues donation, as well as allowed the analysis of some concerns about the procedure, such as: Degree of knowledge about the donation of facial tissues; indications of the procedure; the possible reaction of the family members related to demonstration of willingness in life to donate facial tissues; knowledge about the implications of donation on funeral ceremonies and coexisting with another face after transplant.

The clinical and psychological implications should be evaluated and weighted by a multidisciplinary team involved in face transplantation.

The requirements for completion of the procedure involves some ethical considerations [7], professionals with skill and experience in this process, knowledge of the implications of this surgery, based on research and publications, and structure to provide a full psychological and medical support.

In addition, protocols may be necessary for adequate patient selection; valid consent for the procedure and its possible consequences; information about the use of immune-suppressants, graft rejection, tissue necrosis and attempt to a new transplant.

The host hospital should ensure a long-term financing support if necessary, to ensure that all patients continue to receive the necessary care as well as the support for the families of potential donors. The well-being of the human subject should overcome the interests of science and society [7].

Considering that the procedure is technically feasible, with a high level of success, another important point to be examined is the vulgarization of the procedure, i.e., perform it with aesthetics purpose.

Thus, when asked the population about the indications of face transplantation, 90.1% of participants referred that is indicated in cases of severe facial deformities like tumors, burns, trauma, congenital malformation and sequelae, aiming to improve the quality of life and minimizing the concern about vulgarization of the surgery.

However, the knowledge of the participants in relation to other points of interest about the surgery was restricted. It was demonstrated that 65.8% have no knowledge about the donation of facial tissues; 84% did not know about the implications on funeral ceremonies for the family and 67.7% did not imagine the reaction of the family in relation to manifesting the willingness of being a donor.

Thus, there is a need for further information and dialogues between family members about this new modality of transplants.

In the survey, 51.7% of participants allows the donation of face tissues and 87% would support the decision of their families if they manifest willingness in being a donor. This demonstrates the unselfish attitude of the population about organ donation, considered as an act of solidarity and of extreme importance to life.

Asked about the possibility of living with another face, 375 participants responded that they would accept to live with another face, although they consider this situation as bizarre. They stated that it is better to get a new face to improve the quality of life than living with difficulties and facial deformities.

Due to the importance of the face in social relationship between individuals, deformities of any kind can generate discrimination and social isolation, as well as stigmatization when compared to "normal" individuals [8].

For Morris et al. [7], the face is crucial for the understanding of our own identity.

The face transplant has a crucial importance in this context, as an acceptable appearance and a normal interaction with society are desired. Many

individuals would be willing to accept the risks involved if it means improving the quality of life. Our “external” face is one of the main tools for our relationship with the world, and thus, can generate discussion about the psychological impact of living with a face received from someone else [9].

In addition, only the face can provide communication and express our feelings and the transplant represents the symbolic restoration of a connection with the world.

Clinical, technical complexity and immune monitoring of the recipients after the procedure is similar to transplants of other organs [10,11]. In the short term the results were positive, but long-term physical complications, emotional, psychological and family assessment of the recipient and the donor have not been studied.

There are valid arguments in favor of face transplantation. However, it is only through positive actions that there might be a hope in the progress with a face transplant, and although caution is important, it should not be decisive and dominant in the act of deciding [12,13].

The participant population demonstrated their preference in living with a new face and life quality than being limited due to facial deformities and thus, expressed the desire for greater disclosure and additional information about the procedure.

In contrast to what happens in the transplantation of other organs such as heart, kidneys, lungs and liver, the face transplant has a main objective to improve the quality of life of the candidate and integrate him again in the social environment and not prolong it. The clinical and psychological implications should be thoroughly assessed and considered by the transplant team and consolidated on ethical and moral concepts and by a severe legislation for the follow-up.

6. CONCLUSION

We concluded that the population showed a restricted knowledge about the implications of facial tissues donation and face transplantation, but would accept to live with another face as well as support the willingness of family members to be a donor. They considered the necessity of further explanation about the procedure.

CONSENT

It is not applicable.

ETHICAL APPROVAL

All authors hereby declare that the questionnaire have been examined and approved by the Medical Ethics Committee of Botucatu School of Medicine – State University of Sao Paulo – Brazil.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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