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## Psychological and personality assessment in patients candidates for Uterus Transplantation from deceased donor: preliminary results

P. Scollo<sup>1</sup>, B. Pecorino<sup>1</sup>, S. La Spina<sup>1</sup>, P. Veroux<sup>2</sup>, A. Giaquinta<sup>2</sup>, G. Scibilia<sup>1</sup>

<sup>1</sup>Gynaecology and Obstetrics Units, Cannizzaro Hospital, Catania, Italy

<sup>2</sup>Department of Medical and Surgical Sciences, Vascular Surgery and Organ Transplant Unit, University Hospital of Catania, Catania, Italy

### ABSTRACT

**Objective.** To identify any disorder emerging from the psychological and personality assessment in patients candidates for Uterus Transplantation from deceased donor.

**Methods.** Minnesota Multiphasic Personality Inventory-2 questionnaire was administered to patients affected from Absolute Uterine Factor Infertility candidates for Uterine Transplantation from deceased donor (protocol n. 1438/CNT2018 by National Transplant Center) during the first visit at Gynaecology and Obstetrics Unit of the Cannizzaro Hospital of Catania. The averages of T points for the clinical scales and subscales of the test were calculated. Clinical scale and subscales are significant for T points average equal to or greater than 65. The study was approved by Ethical Committee Catania 1 of the Policlinico-Vittorio Emanuele Hospital of Catania (protocol n. 0026684 on 03/07/2017).

**Results.** 19 patients aged from 18 to 40 returned a valid questionnaire. The median age is 28 years (range 21-38). Eighteen women have MRKH Syndrome, one hysterectomized. Significant elevation has been detected on the clinical scales for the triad: hypochondria, depression, hysteria; and subscales: subjective depression, physical dysfunctions, lassitude-malaise, somatic complaints.

**Conclusions.** The patients candidates for uterine transplantation have alterations in the personality profiles that concern depression, hypochondria and hysteria.

### SOMMARIO

**Obiettivo.** Identificare qualsiasi disturbo emergente dalla valutazione psicologica e della personalità nelle pazienti candidate al trapianto di utero da donatore deceduto.

**Metodi.** Il questionario Minnesota Multiphasic Personality Inventory-2 è stato somministrato alle pazienti affette da Infertilità assoluta del fattore uterino candidate per il trapianto uterino da donatore deceduto (protocollo n. 1438/CNT2018 del National Transplant Center) durante la prima visita presso l'Unità di Ginecologia e Ostetricia del Cannizzaro Ospedale di Catania. Sono state calcolate le medie dei punti T per le scale cliniche e per le sotto scale del test. La scala clinica e le sotto scale sono significative per punti T medi pari o superiori a 65. Lo studio è stato approvato dal Comitato Etico Catania 1 dell'Ospedale "Policlinico-Vittorio Emanuele" di Catania (protocollo n. 0026684 del 03/07/2017).

**Risultati.** 19 pazienti di età compresa tra 18 e 40 anni hanno consegnato un questionario valido. L'età media è di 28 anni (range 21-38). Diciotto donne hanno la sindrome MRKH, una di queste è isterectomizzata. Una elevazione significativa è stata rilevata sulla scala clinica per la triade: ipocondria, depressione, isteria; e per le sotto scale: depressione soggettiva, disfunzioni fisiche, stanchezza/malessere, disturbi somatici.

**Conclusioni.** Le pazienti candidate al trapianto uterino presentano alterazioni nei profili di personalità che riguardano depressione, ipocondria e isteria.

**Corresponding Author:** Basilio Pecorino

E-mail: eliopek@gmail.com

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**Key words:**

*Uterus transplantation; psychological; personality; deceased donor; MRKH syndrome.*

## INTRODUCTION

Absolute uterine factor infertility (AUI) affects about 1 in 500 women of childbearing age (1). The most frequent congenital cause of AUI is Mayer-Rokitansky Küster-Hauser Syndrome (MRKH) (2), in which the woman is born without uterus and vagina is absent or hypoplastic. The MRKH Syndrome causes great psychological suffering for patients, who show identity crises, perceiving themselves as “different” and “missing” compared to other women. Other acquired causes of AUI are: removal of the uterus due to postpartum hemorrhage, uterine pathologies (e.g. fibroids, tumors), or conditions in which the uterus is malfunctioning (e.g. Asherman’s Syndrome, damage from radiation, severe adenomyosis) (3). Even in these patients, the absence of the uterus is experienced as suffering and can cause psychological disorders. Uterus transplantation represents the surgical treatment of AUI and is the only option to get pregnancy in women with congenital or acquired absence of the uterus: transplantation of the uterus is not intended as a “*quoad vitam*”, but it is a “*quoad valetudinem*” transplant, that is only aimed at obtaining a pregnancy.

Relevant studies (4-6) reported data on psychological screening of Uterine Transplantation applicant highlighting the importance of psychological assessment but none of them describe pathological traits suspected for mood or personality disorders. The aim of this study is to identify any disorder emerging from the psychological and personality assessment in patients candidates for Uterus Transplantation from deceased donor.

## MATERIALS AND METHODS

On 14/06/2018, in Italy, the National Transplant Center approved the Experimental Project for Uterus Transplantation from deceased donor (protocol n. 1438/CNT2018), for whose realization a team of researcher from the Gynaecology and Obstetrics Unit of the Cannizzaro Hospital of Catania and the Organ Transplant Center of the Policlinico-Vittorio Emanuele Hospital of Catania was authorized. The study was approved by Ethical Committee Catania 1 of the Policlinico-Vittorio Emanuele Hospital of Catania (protocol n. 0026684 on 03/07/2017).

We have received over 50 requests for inclusion on the waiting list. Inclusion criteria are: patients

aged between 18 and 40, suffering from AUI for congenital causes (e.g. MRKH Syndrome) or acquired (e.g. hysterectomy for obstetric complications or for benign pathology). Patients hysterectomized for malignant neoplasms, patients with hepatitis B/C or HIV positive, patients with HPV DNA test positive, patients with low ovarian reserve (AMH < 1 ng/ml) and patients with acquired absence of uterus who have already had at least one child were excluded. The donor is a subject in brain death between the ages of 18 and 40. The uterus is explanted, regardless of the donor’s obstetric history, in the absence of obvious macroscopic pathologies (e.g. uterine fibromatosis); the previous cesarean section is an exclusion criterion. The donor must also meet the donor eligibility criteria set out in the “Protocol for the suitability of the donor of solid organs” (7) of the National Transplant Center. The Montreal Criteria (8) must also be met in the recipient, the donor and the medical team.

The patients who, following a preliminary evaluation of the clinical history and the documentation provided, were found to comply with the inclusion criteria, were summoned to the Unit of Obstetrics and Gynaecology of the Cannizzaro Hospital in Catania, to perform the first visit. The patients were admitted to the Day Hospital for blood and instrumental tests, examination and interviews with the signing of informed consent. After an initial clinical interview with the psychologist, the participants were asked to fill in the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) questionnaire.

The MMPI-2 test consists of 567 items inserted in different scales and subscales.

In total 22 patients performed the first visit in the period from June 2018 to June 2019. Nineteen subjects, of the twenty-two who were asked to participate in the survey, returned a valid questionnaire, and therefore constitute the research sample. For each patient we have collected the personal data (date and place of birth), the pathology determining AUI, the presence of any associated malformations, the neo-vagina surgery and the progress in the protocol.

From the total obtained on the test a raw score is obtained, which is standardized in T points to be interpreted. The averages of the T points for the clinical scales and subscales of the MMPI-2 were calculated. T scores equal to or greater than 65 indicate the presence of pathology (9).

## RESULTS

The median age is 28 years (range 21-38). Eighteen women have MRKH Syndrome, one patient underwent a postpartum subtotal hysterectomy for *abruptio placentae*, and is childless. In patients with MRKH syndrome, the median age at diagnosis is 17 years. **Table I** describes the variables studied for each patient. The median BMI is 24.7 and 11 out of 19 patients (58%) have a BMI greater than 25.

At present, 8 patients (42%) have completed the preliminary steps including oocyte cryopreservation and immunological typing, achieving both gynaecological and surgical suitability for transplantation, and 3 of them (16%) have therefore been placed on the waiting list at the time of the study. 7 patients (42%) renounced due to personal problems: 4 for separation from the partner, 3 for insecurity on facing such a difficult experience. The

remaining 5 patients (21%) were excluded from the project: 3 cases for ectopic ovaries not achievable with modern oocyte pick-up techniques even after stimulation, 1 case for HPV-DNA test positive for high oncogenic risk genotype.

**Figures 1 and 2** show the average personality profiles obtained from MMPI-2 administration related to the clinical scales and subscales of Harris and Lingoies, respectively.

We highlighted a score elevation on the clinical scales, higher than the cut-off of 65, for the triad: hypochondria (Hs), depression (D), hysteria (Hy). 73.68% of the sample has a high score on Masculinity/femininity (Mf) scale, *i.e.* higher than 60.

There is also a high score in the Harris and Lingoies subscales, higher than the cut-off of 65, respectively: subjective depression (D1), physical dysfunctions (D3), lassitude-malaise (Hy3), somatic complaints (Hy4).

**Table I.** Resume of descriptive statistic of sample.

N.	Initials	Place of birth	Age	Diagnosis age	Pathology	Other malformations	Neovagina	BMI	PROGRESS
1	AA	ITALY	27	17	MRKH Syndrome	Vaginal agenesis	Yes	27,23	DEFEATIST
2	BMD	ROMANIA	28	25	MRKH Syndrome	None	No	25,42	WAITING LIST
3	BA	ITALY	38	18	MRKH Syndrome	None	No	19,37	DEFEATIST
4	BE	ITALY	35	16	MRKH Syndrome	None	No	27,11	ELIGIBLE
5	CV	ITALY	26	14	MRKH Syndrome	Low ovarian reserve	No	26,66	EXCLUDING
6	CA	ITALY	22	19	MRKH Syndrome	Vaginal agenesis	Yes	19,45	EXCLUDING
7	CE	ITALY	26	16	MRKH Syndrome	Vaginal agenesis	Yes	22,9	DEFEATIST
8	DA	ITALY	25	14	MRKH Syndrome	None	No	32,77	ELIGIBLE
9	KK	KOSOVO	26	16	MRKH Syndrome	Left kidney agenesis, pelvic right kidney, vaginal agenesis	Yes	23,21	DEFEATIST
10	MS	ITALY	27	14	MRKH Syndrome	Ectopic ovaries, chronic renal deficiency	No	24	EXCLUDING
11	MM	ITALY	25	16	MRKH Syndrome	None	No	24,27	ELIGIBLE
12	ML	ITALY	32	16	MRKH Syndrome	None	No	25,16	DEFEATIST
13	PS	ITALY	23	11	MRKH Syndrome	Right kidney agenesis, Vaginal Agenesis	Yes	19,85	EXCLUDING
14	PC	ITALY	35	17	MRKH Syndrome	Left kidney agenesis	No	22,14	DEFEATIST
15	SI	ITALY	21	17	MRKH Syndrome	Left kidney agenesis, bilateral hearing loss	No	23,01	ELIGIBLE
16	SMG	ITALY	32	26	Post-partum hysterectomy	None	/	27,53	ELIGIBLE
17	VC	ITALY	27	17	MRKH Syndrome	None	No	26,35	DEFEATIST
18	VA	ITALY	28	18	MRKH Syndrome	Left kidney agenesis	No	26,56	WAITING LIST
19	ZG	ITALY	38	18	MRKH Syndrome	Vaginal agenesis	Yes	26,56	WAITING LIST

## DISCUSSION

Uterus transplantation, although still considered an experimental technique, is now a real option for the treatment of AUIF (10-16).

Several studies in the literature have already highlighted the importance of psychological evaluation in uterine transplantation (17-20), noting: the importance of communication with the patient, the evaluation of the patient's real expectations, the relationship with the donor (21) (in realities where

transplantation takes place as a living donor), evaluation of alternative strategies (surrogate motherhood, adoption). No study has highlighted mood or personality disorders in these patients during the preliminary steps leading to transplantation.

The results of our study revealed an average personality profile characterized by reactive depression, anxiety, somatization, isolation, low self-esteem, fear of being alone. The main aspects that characterize the "neurotic triad": Hs, D, Hy, suggest a trend to manifest symptomatic forms of depression

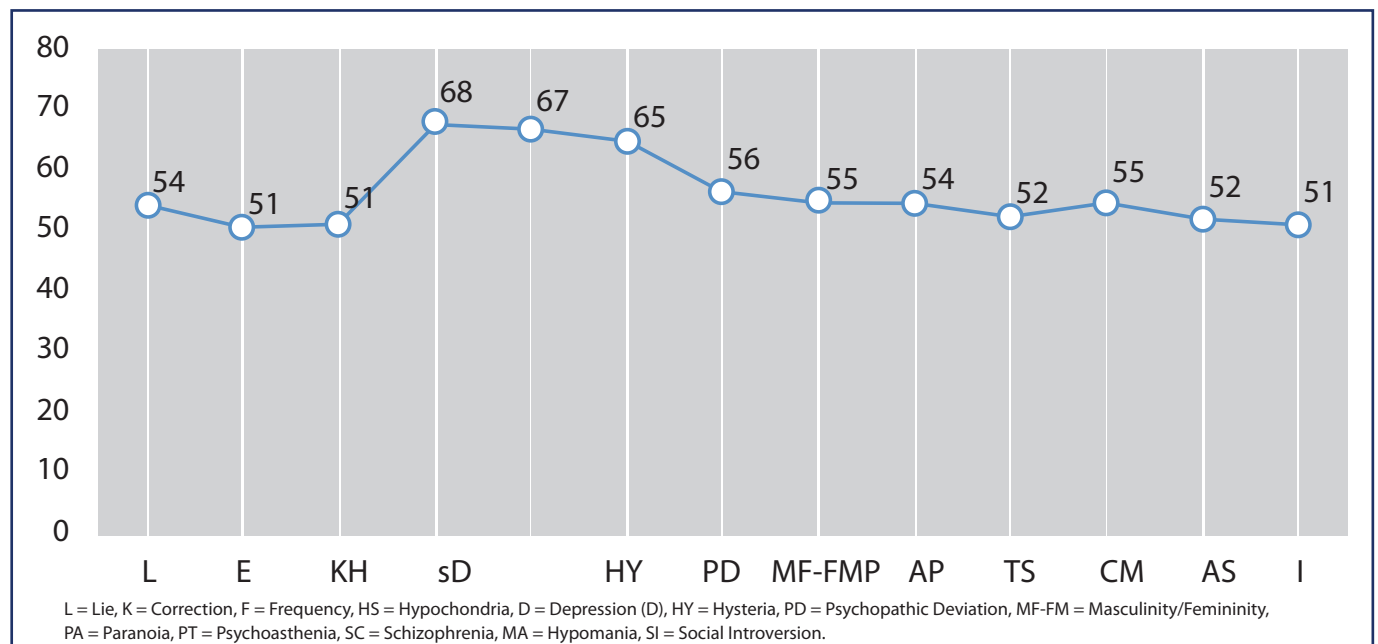


Figure 1. Average scores MMPI-2 Clinical Scales.

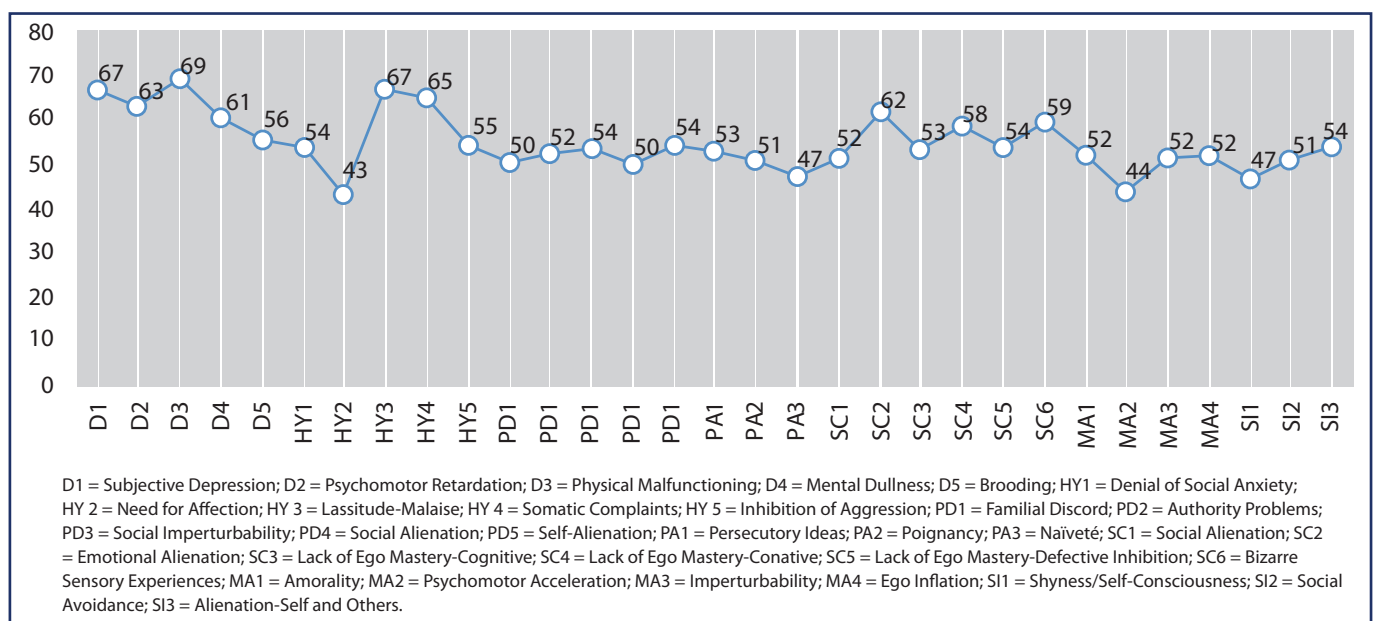


Figure 2. Average scores MMPI-2 sub-scales.

and to react to stressful situations by converting psychological symptoms into physical symptoms. The hypochondria (Hs) scale has revealed patients with excessive concern for their health, exceeding reaction to any real problem, pessimistic and cynical vision of life. The patients show difficulties in managing stressful events, poor resilience, low level of resistance to stress. In particular, tests of women who left the uterine transplant protocol after the first step, show significant elevation in these areas, poor coping skills, and difficulty to undertake a potentially "stressful" experience.

The D scale (depression) has revealed a subject with a depressed, discouraged mood, characterized by ideational poverty, hostility towards himself and others, pessimistic polarizations of thought, marked sense of guilt. In the literature, several recent studies have confirmed the presence of psychological problems such as anxiety and depression in women with infertility and in particular in women who have MRKH Syndrome (22, 23). The patients who have obtained a high score in this area tell us that they do not have many interests in daily life; they are difficult to engage in something that they are passionate about. They show many difficulties in looking to the future, often this thought is identified with the inability to procreate linked to the syndrome.

The hysteria (Hy) scale has designed a subject, typically self-centered and narcissistic, in need of affection and with little insight. In these cases there is a marked negation of concern for physical problems, and this could somehow explain the inability to effectively cope with the stresses of life. The tendency towards somatization of some psychic emotions and discomforts is highly developed in these patients.

High scores on masculinity-femininity scale (Mf-Fm) reflect women who reject roles considered to be typically female and who tend to identify more with male stereotypes. It can be assumed that the

difficulty with identification with the female role may be associated with suffering due to the lack of the "organ": the uterus; patients suffer greatly from the impossibility of procreation and cannot identify symbolically with the female role.

In the average personality profile of women, considerable somatic discomfort, fatigue and malaise emerge. A discouraged experience of life, a sense of guilt towards one's body experienced as "wrong" and "missing" is evident. The altered personality profiles relate purely to the sphere of depression, hypochondria, clearly linked to the suffering of the syndrome, the lack that women experience on a daily basis, and the impossibility of being able to give life. Women experiencing this problem can benefit from interventions based on psychological support and group therapy, in addition to support from family members.

This study has several limitations, first of all the use of a questionnaire. In addition, it is a retrospective study with a limited sample of patients. Finally, the data are to be considered only preliminary since the preparation to transplantation is still ongoing.

In conclusion, albeit with the limits shown, the patients candidates for uterine transplantation have alterations in the personality profiles that concern depression, hypochondria and hysteria; they have also an elevation of the scale of masculinity and somatic disorders.

Further studies are needed to investigate these preliminary results. First of all, to investigate whether psychological support contributes to the improvement of the pathological characteristics studied in patients awaiting transplantation. In addition, to define whether these profiles represent a contraindication to being placed on a waiting list for uterine transplantation.

## CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

## REFERENCES

1. Brännström M. Uterus transplantation and beyond. *J Mater Sci Mater Med* 2017;28(5):70.
2. Brannström M. The Swedish uterus transplantation project: the story behind the Swedish uterus transplantation project. *Acta Obstet Gynaecol Scand* 2015;94:675-679.
3. Tummers P, Göker M, Dahm-Kahler P, *et al.* Meeting Report: First State-of-the-Art Meeting on Uterus Transplantation. *Transplantation* 2019;103:455-459.
4. Johannesson L, Wallis K, Koon EC, *et al.* Living uterus donation and transplantation: experience of interest and screening in a single center in the United States. *Am J Obstet Gynaecol* 2018;218(3):331.e1-331.e7.
5. Taran F-A, Scholler D, Rall K, *et al.* Screening and evaluation of potential recipients and donors for living donor uterus transplantation: results from a single-center observational study. *Fertil Steril* 2019;111:186-193.
6. Järholm S, Warren AM, Jalmbraant M, Kvarnström N, Testa G, Johannesson L. Preoperative psychological evaluation of uterus transplant recipients, partners, and living donors: Suggested framework. *Am J Transplant* 2018;18:2641-2646.
7. [http://www.trapiantipiemente.it/pdf/Linee/ProtocolloIdoneitaDonatore\\_dic2017.pdf](http://www.trapiantipiemente.it/pdf/Linee/ProtocolloIdoneitaDonatore_dic2017.pdf).
8. Lefkowitz A, Edwards M, Balayla J. The Montreal Criteria for the Ethical Feasibility of Uterine Transplantation. *Transplant International* 2012;25:439-447.
9. Ben-Porath, Y. S. *Interpreting the MMPI-2-RF*. Minneapolis: University of Minnesota Press 2012.
10. Jones BP, Saso S, Bracewell-Milnes T, *et al.* Human uterine transplantation: a review of outcomes from the first 45 cases. *BJOG* 2019;126:1310-1319.
11. Ejzenberg D, Andraus W, Baratelli Carelli Mendes LR, *et al.* Livebirth after uterus transplantation from a deceased donor in a recipient with uterine infertility. *Lancet* 2018;392:2697-2704.
12. Testa G, McKenna GJ, Gunby JRT, *et al.* First live birth after uterus transplantation in the United States. *Am J Transplant*. The American Society of Transplantation 2018;18:1270-1274.
13. Johannesson L, Kvarnstrom N, Molne J, *et al.* Uterus transplantation trial: 1-year outcome. *Fertil Steril* 2015;103:199-204.
14. Brännström M, Johannesson L, Bokström H, *et al.* Livebirth after uterus transplantation. 2015;385:607-616.
15. Brännström M, Johannesson L, Dahm-Kähler P, *et al.* First clinical uterus transplantation trial: a six-month report. *Fertil Steril* 2014;101:1228-36.
16. Flyckt R, Falcone T, Quintini C, Perni U, Eghetesad B, Richards EG. First birth from a deceased donor uterus in the United States: from severe graft rejection to successful cesarean delivery. *Am J Obstet Gynaecol* 2020;S0002-9378(20)30247-7.
17. Saso S, Bracewell-Milnes T, Ismail L, *et al.* Psychological assessment tool for patients diagnosed with absolute uterine factor infertility and planning to undergo uterine transplantation. *J Obstet Gynaecol* 2014;34:504-507.
18. Saso S, Clarke A, Bracewell-Milnes T, *et al.* Psychological Issues Associated With Absolute Uterine Factor Infertility and Attitudes of Patients Toward Uterine Transplantation. *Progr Transplant* 2016;26:28-39.
19. Petrinia C, Gainotti S, Morresi A, Nanni Costa A. Ethical Issues in Uterine Transplantation: Psychological Implications and Informed Consent. *Transplant Proc* 2017;49:707-710.
20. Akar ME, Ozekinci M, Alper O, *et al.* Assessment of women who applied for the uterine transplant project as potential candidates for uterus transplantation. *J Obstet Gynaecol Res* 2015;41:12-16.
21. Jarvholm S, Johannesson L, Brannstrom M. Psychological aspects in pre-transplantation assessments of patients prior to entering the first uterus transplantation trial. *Acta Obstet Gynaecol Scand* 2015;94:1035-1038.
22. Weijenborg PTM, Kluivers KB, Dessens AB, Kate-Booij MJ, Both S. Sexual functioning, sexual esteem, genital self-image and psychological and relational functioning in women with Mayer-Rokitansky-Küster-Hauser syndrome: a case-control study. *Hum Reprod* 2019;34:1661-1673.
23. Fliegner M, Richter-Appelt H, Krupp K, Brucker SY, Rall K, Brunner F. Living with permanent infertility: A German study on attitudes toward motherhood in individuals with Complete Androgen Insensitivity Syndrome (CAIS) and Mayer-Rokitansky-Küster-Hauser Syndrome (MRKHS). *Health Care Women Int* 2018;39:1295-1315.