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Female sexual function in urological practice

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CHAPTER 6

Female sexual function after surgery for stress urinary incontinence: Transobturator Suburethral Tape (TOT) versus Tension-free Vaginal Tape Obturator (TVT-O)

Based on:

Elzevier HW, Putter H, Pelger RCM, Delaere KPJ, Venema PL, Lycklama à Nijeholt AAB Female sexual function after surgery for stress urinary incontinence: Transobturator Suburethral Tape (TOT) versus Tension-free Vaginal Tape Obturator (TVT-O) J sex Med 2008;5:400-406

INTRODUCTION

The surgical treatment of female stress urinary incontinence (SUI) due to urethral hypermobility has been profoundly changed a few years ago when Ulmsten described a new concept in 1995: the Tension-free Vaginal Tape (TVT) (1). To reduce the complications of the TVT, particularly with high-risk patients like those who have been operated on before in the lower pelvis, an alternative approach with a transobturator passage of the tape has been developed, the transobturator suburethral tape (TOT) (2) not long there after the Tension Free Vaginal Tape Obturator (TVT-O) (3).

TOT and TVT-O appear to be equally efficient as TVT for surgical treatment of stress urinary incontinence in women at 1-year follow-up (4-7).

There are several studies dealing with the negative effects of urinary problems on an individual's sexual life (8-11). Problems related to urinary incontinence, especially leakage during intercourse, wetness at night, odor and bedwetting, have been associated with sexual dysfunction such as decrease in frequency of coitus, anorgasmia and dyspareunia. The influence non surgical (12;13) and surgical treatment like TVT on sexual function has described before (14-20). Also the first results in relation to the TOT has been published (21;22). Only sexual function in both TOT studies is a minor part of the Qol evaluation.

The aim of the present study was to assess the influence of outside-in TOT procedure and inside out TVT-O procedure for the surgical treatment of SUI, on female sexual function.

MATERIALS AND METHODS

From January 2005 to December 2005, 78 sexual active patients had a TOT and TVT-O inserted for treatment of SUI. Patients with a pelvic organ prolapse who needed more extensive surgical treatment were excluded. The procedure was performed according to the technique of Delorme or de Leval in two different clinics with a long experience on incontinence surgery. We used a non-validated sexual questionnaire developed by Lemack (23) translated in Dutch and a few novel neuroanatomical questions (Appendix). The questionnaire, as well as an introduction letter stating the goal of the study was mailed 3 to 4 months after the procedure to the patients. The study was approved by our institutional review board.

Differences in percentages were evaluated using Pearson's chi-square test. A two-sided P-value of <0.05 was considered statistically significant.

RESULTS

Introduction:

We evaluated 102 TVT-O and TOT patients. Only 78 of them (76,4%) were sexual active. A total of 44 TOT (OB-TAPE Porges) patients (n=44, mean age 52.0 yr) and 34 TVT-O patients (n=34, mean age 53.2 yr) could be included. All patients completed the questionnaire 3 to 4 months after placement of the tape.

Postoperative TOT and TVT-O:

Almost no difference in frequency of sexual intercourse and an improvement of the continence during intercourse: continence was reported in 33 patients (42,3%) before and 67 patients (78,4%) after operation. The appreciation of sexual intercourse was improved in 15 patients (19,2%) and worsened in 8 patients (10,3%). The appreciation of sexual intercourse was improved in 7 patients (20,6%) and worsened in 2 patients (5,9%) in the TVT-O procedure and improved in 8 patients (18,2%) and worsened in 6 patients (13,6%) in the TOT procedure (Table 1,2).

Postoperative TVT-O vs TOT:

Due to the operation, no difference was seen in loss of lubrication, clitoral tumescence reduction and clitoral sensibility reduction between both procedures. Pain because of vaginal narrowing was seen significantly more in the TOT procedure group (Table 3).

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Table 1 Results of questionnaire on intercourse before and after TOT and TVT-O procedures in sexually active women

		N = 78	
		Preoperative	Postoperative
Frequency of intercourse	More than twice per week	10 (12.8%)	8 (10.3%)
	One to two times per week	30 (38.5%)	28 (35.9%)
	One to three times per month	31 (39.7%)	33 (42.3%)
	Less than once per month	7 (9.0%)	9 (11.5%)
Sexual intercourse is	Pleasurable	64 (82.1%)	58 (74.4%)
	Neither pleasurable nor painful	8 (10.3%)	10 (12.8%)
	Painful	6 (7.7%)	10 (12.8%)
Do you experience leakage during intercourse?	No	33 (42.3%)	69 (78.4%)
	Yes, rarely	11 (14.1%)	4 (5.1%)
	Yes, occasionally	21 (26.9%)	4 (5.1%)
	Yes, frequently	8 (10.3%)	0 (0%)
	Yes, always	5 (6.4%)	1 (1.3%)

Table 2 Overall sexual appreciation after TOT and TVT-O procedures

	Overall, how would you describe intercourse postoperatively?					
	OT		TVT-O		TOT	
	Frequency	Percent	Freq.	Percent	Freq.	Percent
Better than prior to surgery	15	19.2%	7	20.6%	8	18.2%
Worse than prior to surgery	8	10.3%	2	5.9%	6	13.6%
No different than prior to surgery	55	70.5%	25	73.5%	30	68.2%
Total (N)	78		34		44	

OT = obturator tape; TVT-O = tension-free vaginal tape obturator; TOT = transobturator suburethral tape.

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Table 3 Sexual function and vaginal anatomical changes after operation TVT-O vs. TOT

		TVT-O		TOT		P
		N	%	N	%	
<i>My lubrication during sexual activity is less since the operation.</i>	Yes	6	18.2	7	18.4	0.612
	No	27	81.8	31	31	
<i>The sensibility of my clitoris is less since the operation.</i>	Yes	3	9.1	6	15	0.346
	No	30	90.9	34	85	
<i>The tumescence (swelling) of my clitoris is decreased by the operation.</i>	Yes	2	6.1	6	15.8	0.181
	No	31	93.9	32	84.2	
<i>Do you experience pain because of vaginal narrowing due to the operation?</i>	Yes	1	3	8	20.5	0.026
	No	31	97	31	79.5	
<i>Since the operation, I don't like to have sex anymore. Is that true?</i>	Yes	0	0	3	7.9	0.148
	No	33	100	35	92.1	

TVT-O = tension-free vaginal tape obturator; TOT = transobturator suburethral tape.

Partner evaluation

42 Of the TOT partners completed the partner questionnaire. No difference was seen in pain due to vaginal dryness pre and postoperative. 4 Partners (9.5%) experienced vaginal narrowing after the operation. A total of 3 patients were able to have intercourse without pain in spite of feeling the tape.

33 Of the TVT-O partners completed the partner questionnaire. No difference was seen in pain due to vaginal dryness. A total of 2 partners (6.1%) complained about vaginal narrowing without pain. Only one partner noticed the tape during intercourse and complained about pain due to the tape.

DISCUSSION

Female sexual dysfunction (FSD) as a clinical term includes a variety of sexual problems. Although 30%–50% of women suffer from sexual dysfunction, only recently has more medical and clinical research been focused on the problems related to urological and gynecological operations (24;25).

During a TVT procedure theoretically the pelvic plexus branches, which supply the blood vessels of the internal genitals and are involved in the neural control of vasocongestion and, consequently, the lubrication-swelling response, can be damaged. Also the pudendal nerve branches can be injured during this procedure. In contrast, the TOT and TVT-O procedure have no relation to the pelvic plexus branches. But there could be a relation to the pudendal nerve. As a consequence, if there is an alteration of sexual function it probably will affect the somatosensory pathway of the vulva. However, during recent anatomical studies the tape was not disturbing the pudendal nerve (26;27).

In contrast to the anatomical studies we find in our study deterioration in tumescence of the clitoris in 6.1% in TVT-O patients and 15.8% in TOT patients. This outcome and also the changes in clitoral sensibility should be an important issue for future studies.

Not only the innervation of the clitoris can be disturbed but the vaginal anatomy as well. An altered vaginal anatomy as a result of vaginal surgery has been described before. Vaginal narrowing/shortening following posterior repair has been reported to result in sexual dysfunction in 17% of the women surveyed (28). Also colpoperineorrhaphy may result in dyspareunia due to narrowing of the vagina (29).

The localization of the TOT or TVT-O tape could result in vaginal narrowing. In this study vaginal narrowing was significantly seen more in the TOT procedure compared to the TVT-O procedure. The reason could be that more vaginal tissue (perineal membrane) in the outside-in procedure is included and therefore more vaginal narrowing is seen. Because of the question “Is sexual intercourse better because of the reduction of urine loss during sexual intercourse” we know the positive influence of incontinence treatment on sexual function was 100% related to the reduction of incontinence during intercourse. In the TOT study of Lukban (30), 6% (n=33) of the patients concluded that they were less able to have a sexual relationship. Also 14.9% of the patients experienced vaginal pain, pressure or protrusion. These results are comparable with our study results of 12.5% pain due to vaginal narrowing in the total population. It is interesting that in Lukban’s study 33% of the patients was better able to have a sexual relationship and in 61% it was about the same. In our study 19.2% described an improvement and 70.5% no different than prior to surgery.

Compared to our TVT-study (31) more sexual problems were seen after TVT-O

and TOT procedures. In that TVT-study only 1 patient of 65 (1.5%) had more problems during sexual intercourse because of increase of incontinence. Some of the limitations of this study have to be discussed. The translated Lemack-questionnaire and the neuroanatomical sexual questions we used are not validated. One of the reasons was we wanted to compare the TOT/TVT-O data with our TVT-study. On the other hand at this moment we do not have neuroanatomical sexual questionnaires or questionnaires related to vaginal anatomy changes due to vaginal surgery. Therefore we tried to introduce some more specific clitoral function and vaginal anatomy questions. In our study vaginal narrowing was seen in 19,5% of the TOT patient population. In the study of Weber et al the difference between patients' perception and objective measures of vaginal dimensions after prolaps or incontinence surgery is intriguing.

However, they could not correlate symptoms with objective changes in vaginal length/caliber in those with sexual dysfunction after surgery. It is remarkable that in our study 9.8% of the partners of the TOT group and 6.7% of the TVT-O group also experience vaginal narrowing and a few noticed the tape during intercourse.

The operations were performed in 2 different hospitals by 2 different surgeons, this could give a bias. Therefore we asked two surgeons with a long experience in incontinence surgery to perform the operation they preferred. The best way to study female sexual function in relation to both procedures is a randomized multicenter study, with enough power, as initiated by clinicaltrials.gov in relation to TVT and TOT; the TOMUS study (Trial of Mid-urethral Slings - comparing TVT to TOT).

The retrospective design, without baseline measurement, could be qualified as limitation of the study as well, though we do not know the influence of prospective sexual function study itself on sexual behavior of the patients. Maybe the questionnaire could have a positive input on sexual function. In the study of Ghezzi et al (32), frequency of sexual intercourse significantly increased in contrast to other TVT studies. Maybe the frequency was increased to please the investigating doctor in order to know if leakage during intercourse was still there after the TVT procedure? The influence of questionnaires itself on sexual behavior has not been investigated before.

CONCLUSION

In this descriptive non-randomized cohort study 3-4 months postoperatively the technique of TOT (outside-in) gave rise to more sexual dysfunction than TVT-O (inside-out). However, because of the successful outcome on incontinence, both procedures have overall a positive effect on sexual function. The possible

cause of significant more pain during intercourse after the TOT procedure as a result of vaginal narrowing requires further investigation. In short, this study demonstrated that TOT and TVT-O could have both a positive and a negative outcome on sexual function and that it is of importance to discuss this issue in the informed consent.

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APPENDIX

QUESTIONNAIRES

1 *Date of Birth* _____

2 *Operation date* _____

3 *Do you have menstruation*

- Yes, regular (every 4 weeks)
- Yes, but not regular
- No, since a few months not anymore
- No, since more than 1 year not anymore

4 *Did you have other abdominal or vaginal operation before the incontinence operation* yes no

4a *If yes, please write down the kind of operation you have.*

The next questions refer to the situation one year before operation

5 *Were you last year sexually active?* yes no

**If you answered this question with no please answer next questions.
If you answered yes, you can go to answer 10**

6 *This question refers to the reason why you were not sexually active before operation.*

Was this the result of:

- Not having a partner
- Partner related problems as, for example, illness, impotence, age
- Patient related problems as, for example illness, age
- A combination of these factors

6a *If you would you like to give an explanation, you can write it underneath.*

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The reason for not being sexually active anymore was due to the next problems?

7 *Incontinence during sexual intercourse* yes no

8 *Pain during sexual intercourse* yes no

9 *Lost of libido* yes no

The next questions refer to sexual activity before the operation

10 *Frequency of sexual activity with penetration*

More than 2 times a week

1-2 times a week

1-3 times a month

less than once a month

11 *Sexual activity with penetration is?*

Enjoyable

Neither enjoyable nor painful

Painful

12 *Was there a question of incontinence, loss of urine during sexual intercourse?*

No

Yes, but rarely

Yes, occasionally

Yes, frequently

Yes, always

The next questions refer to the situation after the operation

13 *Were you sexually active after operation?* yes no

If you answered this question with no please answer next question.

If you answered yes, you can go to question 18

This questions refers to the reason why you werent sexually active after operation

14 *Was this the result of?*

- Not having a partner
- Partner-related problems, for example illness, impotence, age
- Patient-related problems, for example illness, age
- A combination of these factors

14a If you would you like to give an explanation, you can write it underneath

The reason for not being sexually active anymore was due to the next problems?

15 *Incontinence during sexual intercourse* yes no

16 *Pain during sexual intercourse* yes no

17 *Lost of libido* yes no

The next questions refer to sexual activity after the operation

18 *Frequency of sexual activity with penetration*

- More than 2 times a week
- 1-2 times a week
- 1-3 times a month
- less than once a month

19 *Sexual activity with penetration is?*

- Enjoyable
- Neither enjoyable nor painful
- Painful

20 *Was there a question of incontinence, loss of urine during sexual intercourse?*

- No
- Yes, but rarely
- Yes, occasionally
- Yes, frequently
- Yes, always

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21 *How would you describe having sexual intercourse after the operation?*

- Better than before the operation
- Worse than before the operation
- No difference between before or after the operation

If you answered the question with better please answer the next question.

22 *Is sexual intercourse better because of the reduction of urine loss during sexual intercourse*

- yes no

22a If there is another reason please write it underneath

If you answered the question with worse please answer the next question.

23 *Please give some comment why sexual intercourse is worsened*

Sexual neuroanatomical questions

24 *My lubrication during sexual activity is less since the operation*

- yes no

25 *The sensibility of my clitoris is less since the operation*

- yes no

26 *The tumescence (swelling) of my clitoris is decreased by the operation*

- yes no

27 *Do you experience pain because of vaginal narrowing due to the operation*

- yes no

28 *Since the operation I don't like to have sex anymore, is that true*

- yes no

Male questionnaire

The next questions refer to sexual activity before the operation

- 1 *Did you experience pain during sexual intercourse due to vaginal narrowing* yes no
- 2 *There is question of narrowing but this is not painful* yes no
- 3 *Pain because of dryness* yes no
- 4 *Vaginal dryness without pain* yes no

The next questions refer to sexual activity after the operation

- 5 *Did you experience pain during sexual intercourse due to vaginal narrowing* yes no
- 6 *There is question of narrowing but this is not painful* yes no
- 7 *Pain because of dryness* yes no
- 8 *Vaginal dryness without pain* yes no
- 9 *Are there other problems after the operation:*
-

10 *Do you feel the tape during sexual intercourse* yes no

11 *If yes, is it painfull* yes no

12 *How would you describe having sexual intercourse after the operation?*

- Better than before the operation
- Worse than before the operation
- No difference between before or after the operation

12a *If you want to give som comment on it please write it underneath*

