

## CHANGES IN CLITORIAL BLOOD FLOW FOLLOWING SURGERY WITH TENSION-FREE VAGINAL MESH FOR PELVIC ORGAN PROLAPSE

### Hypothesis / aims of study

In the previous study, we reported a significant improvement in sexual function outcome following the surgery with tension-free vaginal mesh (TVM) for pelvic organ prolapse (POP). We evaluated the effect of TVM procedure on clitoral blood flow and sexual function in women with POP.

### Study design, materials and methods

A total of 39 underwent TVM for surgical correction of POP. Seventeen of 39 patients underwent translabial color Doppler ultrasonography. The Doppler translabial probe was placed sagittally on the clitoris at an angle of less than 20°, without exerting any significant pressure on the tissues. After identifying the clitoral artery using color flow mapping, the Doppler probe was positioned over the vessel and at least three sequential Doppler waveforms were obtained. We measured the resistance index (RI), pulsatility index (PI), peak systolic velocity (PSV), and end-diastolic velocity (EDV) of the clitoral arteries, before and 1, 3, 12 months postoperatively. Female sexual function was also investigated with the Female Sexual Function Index (FSFI) which was a 19-question, self-report measure, organized in a 6-domain structure, including desire, subjective arousal, lubrication, orgasm, satisfaction, and pain.

### Results

One month after surgery, the mean PI was significantly greater and the mean PSV of the clitoral arteries was significantly lower compared with baseline. ( $P < 0.05$ ). However, the mean PI and mean PSV recovered at 12 months postoperatively. Total FSFI scores was deteriorated from  $10.2 \pm 7.9$  at baseline to  $7.0 \pm 4.3$  at 3 months. However, FSFI scores improved significantly from  $10.2 \pm 7.9$  at baseline to  $18.2 \pm 8.1$  at 6 months,  $21.4 \pm 7.3$  at 12 months after surgery. As the pulsatility index values decreased, FSFI scores tended to increase; and FSFI scores also tended to increase as flow velocity increased.

Parameter	Baseline	1 M after TVM	3 M after TVM	12 M after TVM
RI	$0.77 \pm 0.11$	$0.86 \pm 0.12$	$0.71 \pm 0.06$	$0.75 \pm 0.08$
PI	$1.37 \pm 0.43$	$1.55 \pm 0.34^*$	$1.33 \pm 0.19$	$1.26 \pm 0.30$
PSV (cm/sec.)	$12.38 \pm 7.10$	$8.85 \pm 3.10^*$	$8.03 \pm 0.76$	$10.59 \pm 2.55$
EDV (cm/sec.)	$2.89 \pm 2.54$	$1.48 \pm 1.13$	$2.30 \pm 0.27$	$2.59 \pm 0.76$
FSFI	$10.2 \pm 7.9$	(-)	$18.2 \pm 8.1^{**}$	$21.4 \pm 7.3^*$

\*\* 6M after TVM \*  $P < 0.05$

### Interpretation of results

This is the first study evaluating the clitoral blood flow using color Doppler ultrasonography in patients with POP. Our study demonstrates that surgical correction of POP using TVM may result in decreased clitoral blood flow temporally. As clitoral blood flow return to baseline, improvement in sexual function is noted.

### Concluding message

Color Doppler ultrasonography appears to be feasible and useful in measuring both baseline and post-treatment condition of clitoral blood flow in patients treated with TVM for POP. Further studies are necessary to investigate the effect of clitoral blood flow changes on female sexual function in various clinical settings.

<b>Specify source of funding or grant</b>	None
<b>Is this a clinical trial?</b>	No
<b>What were the subjects in the study?</b>	HUMAN
<b>Was this study approved by an ethics committee?</b>	Yes
<b>Specify Name of Ethics Committee</b>	Ethics Committee of Okayama University
<b>Was the Declaration of Helsinki followed?</b>	Yes
<b>Was informed consent obtained from the patients?</b>	Yes