

# Longitudinal change in urinary incontinence, lower urinary tract symptoms and quality of life after artificial urinary sphincter implantation



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## Background:

Artificial urinary sphincter (AUS) implantation is the standard treatment for severe male sphincteric urinary incontinence (UI). Although AUS markedly improves UI and quality of life (QOL), we reported that the improved UI and QOL were slightly but significantly deteriorated during the 1 year follow up period.<sup>1</sup> Meanwhile, longitudinal changes in lower urinary tract symptoms (LUTS) after AUS implantation have not been thoroughly investigated.

1. Y Kaiho, H Masuda, M Takei, T Hirayama, T Mitsui, M Yokoyama, et al. J Urol. 2018;199:245-250

## Aim:

To evaluate the time course of UI, LUTS and QOL after AUS implantation based on individual longitudinal changes of patient-reported outcomes.

## Methods:

### Patients

Primary AUS\* implantation (2009 – 2019)  
n = 67

\* AMS 800™  
Boston Scientific,  
Marlborough, MA

Excluded  
Insufficient data: n = 1

Included  
n = 66

### Questionnaires

- International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) for assessing UI
- International Prostate Symptom Score (IPSS) for assessing LUTS and QOL
  - ✓ Patients answered these questionnaires preoperatively, 1, 3, and 12 months after activation, and then annually.
  - ✓ When an event requiring AUS removal or revision occurred, data collection was censored.

### Statistics

- Wilcoxon rank sum test for comparison between scores before implantation and 1 month after activation
- Linear mixed model for calculating annual change of the scores

## Results:

- Patients characteristics are shown in Table 1.
- 63 patients (95%) achieved complete or social continence (pads ≤1/day) at 1 month after activation. Even in the other 3 patients, number of daily pads decreased.
- During the mean follow-up period of 36 months, 16 patients had AUS removal or revision.
- ICIQ-SF, IPSS, and IPSS-QOL score were significantly improved at 1 month after activation (all  $P < 0.001$ , Table 2).
- The annual changes from 1 month after activation were 0.51 ( $P = 0.002$ , Fig. 1) in ICIQ-SF, -0.30 ( $P = 0.184$ , Fig. 2) in IPSS, and 0.19 ( $P < 0.001$ , Fig. 3) in IPSS-QOL.

Table 2. Early changes in patient-reported outcomes

	Pre-implantation	1M after activation	P value
ICIQ-SF	18.6 ± 2.6	4.5 ± 3.9	< 0.001
IPSS	14.7 ± 9.0	9.0 ± 5.9	< 0.001
IPSS-QOL	5.4 ± 1.3	1.7 ± 1.4	< 0.001

Mean ± SD

Table 1. Patients' characteristics

	Mean or n	(±SD or %)
Age at implantation (Y)	71	(±6.0)
Cause of incontinence		
Radical prostatectomy	61	(92)
Transurethral prostate surgery	5	(8)
Duration of incontinence (M)	53	(±34)
Daily pad use	5	(±3.2)
Comorbidity		
Hypertension	32	(48)
Diabetes mellitus	10	(15)
Stroke	3	(4.5)
History		
Pelvic irradiation	16	(24)
Urethral stricture treatment	9	(13)

Figure 1. Trend of ICIQ-SF

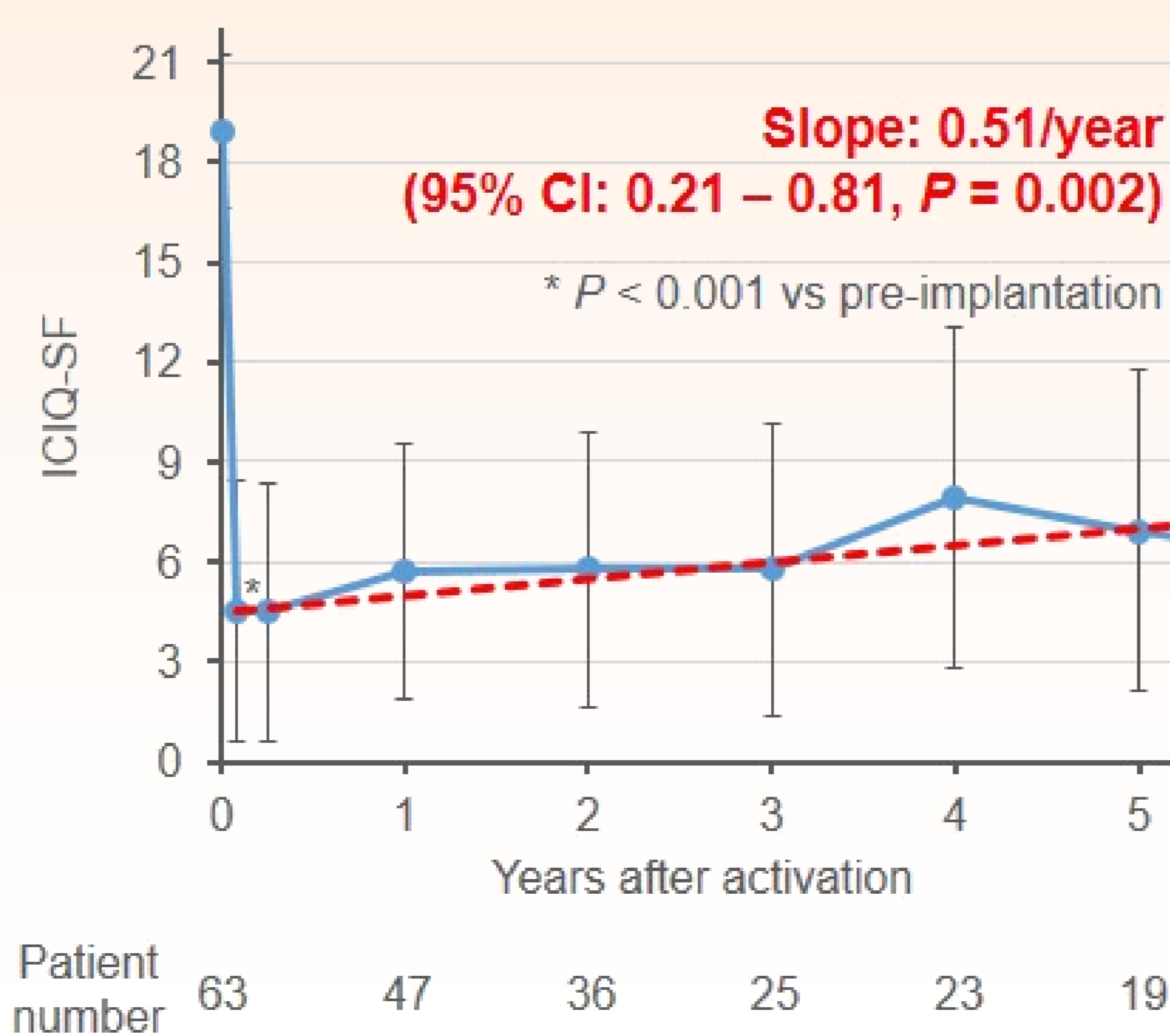


Figure 2. Trend of IPSS

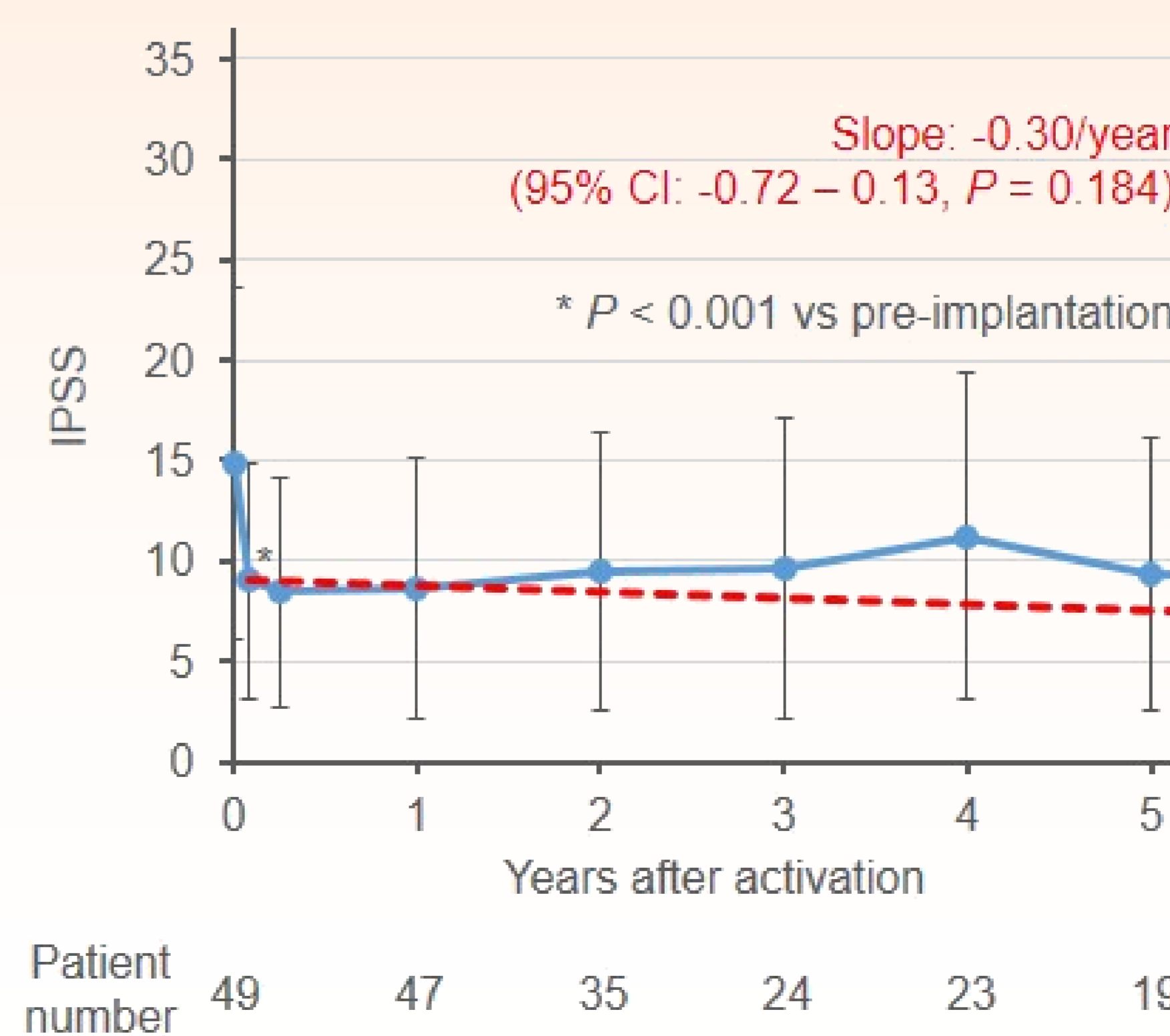
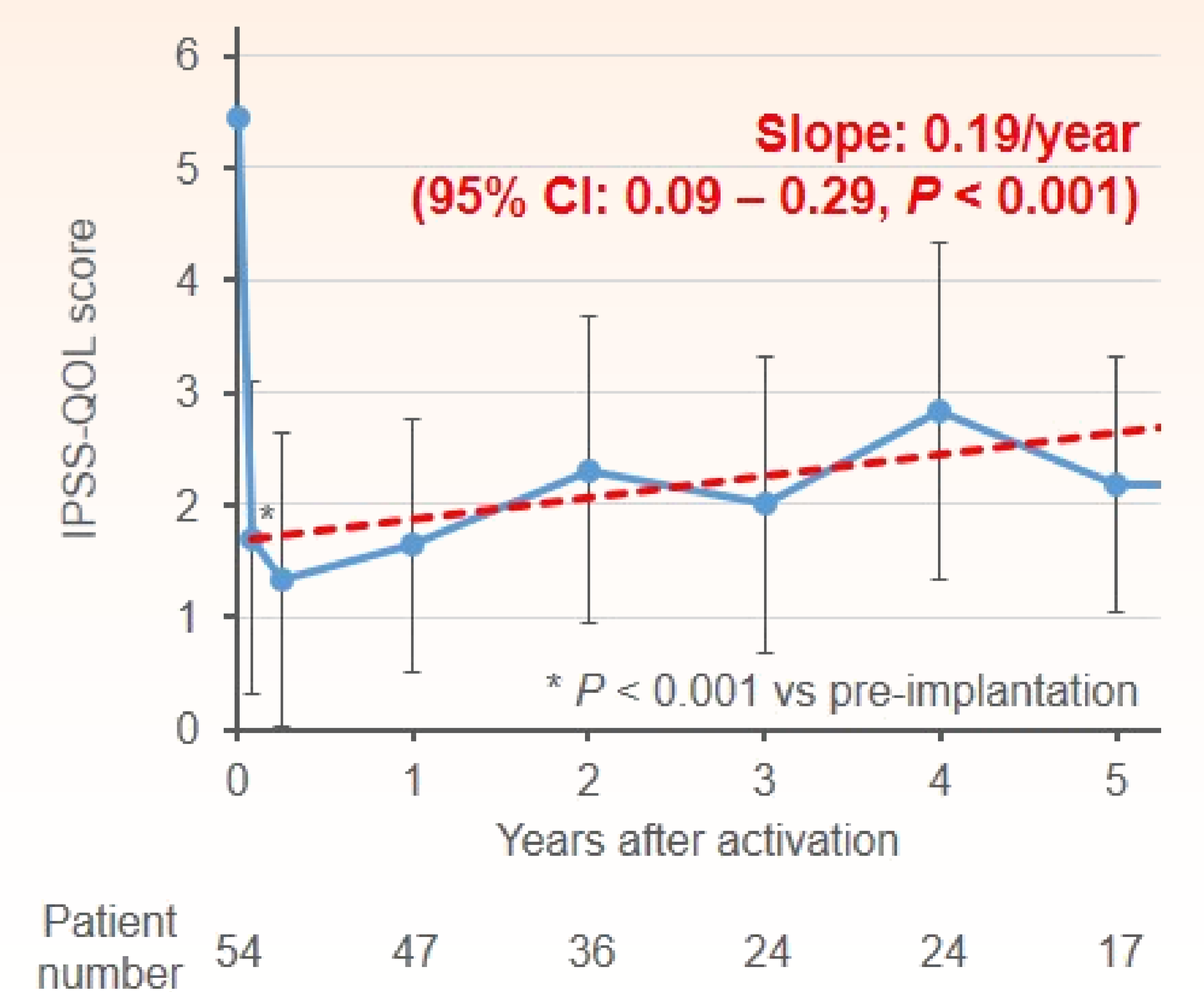


Figure 3. Trend of IPSS-QOL



## Conclusions:

UI and QOL that had markedly improved by AUS implantation deteriorated over time. Improved LUTS were maintained without a worsening trend, however.

## COI

None declared