

#25367 A bio-psycho-social model to elucidate the affecting variables and paradigm shift of female stress urinary incontinence surgery

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Hypothesis / aims of study

We tried to elucidate the affecting variables about female stress urinary incontinence (SUI) surgery over a 20-year period (1999–2018) in Taiwan. We used a bio-psycho-social model to depict different domains of SUI surgery paradigm shift.

The affecting variables included chronological time-frame shift of major surgical types for SUI; primary versus repeat SUI surgery; hospital level; surgeon surgical volume; and surgeon gender.

Study design, materials and methods

This was a retrospective cohort study based on Taiwan’s National Health Insurance Research Database (NHIRD). We divided female SUI surgeries into four time-frames: 1st period (1999–2003), 2nd period (2004–2008), 3rd period (2009–2013), and 4th period (2014–2018).

The affecting variables included: 1. chronological time-frame shift of major surgical types for SUI (retropubic urethropexy, RPU, pubovaginal sling PVS, midurethral sling, MUS); 2. primary versus repeat SUI surgery; 3. hospital level; medical center, regional and local hospital; 4. surgeon surgical volume (high ≥30, median 5-29, low <5); and 5. surgeon gender.

Results

- A total of 51,018 patients were identified. Our results showed:
- 1.The chronological time-frame shift: SUI surgeries increased significantly during first three periods and slightly decreased in the 4th period. MUS significantly increased, which is associated with the decrease of PVS, RPU (**Fig. 1**);
 2. primary versus repeat SUI surgery: MUS had higher reoperation rate, still the most frequently used type for repeat surgery (**Fig. 2**); Surgeon preference more among urologists (**Fig. 3**); .
 3. hospital level: SUI surgeries decreased in medical centers, with the increases of regional and local hospitals (**Fig. 4**); .
 4. surgical volume: the proportion of surgical volume shifted from high- to medium- and low-volume, but it reversed in the 4th period, which means the bandwagen effect does not exist (**Fig. 5**); .
 5. surgeon gender: SUI surgeries by female surgeons increased, more female doctors enter urogynecology field, and patient-surgeon similarity effect. (**Fig. 6**); .

Results Interpretation

During the chronological time-frame shift, MUS surgery increased significantly during first three periods and slightly decreased in the 4th period, which may be due to the warning message from Food and Drug Administration, USA.

MUS is the most commonly used as repeat SUI surgery, which represent the popularity and/or minimal invasive character; meanwhile, same-specialty and same-surgeon preference was more common among urology.

The proportion of surgical volume of major surgical types, as well as MUS, shifted from high- to medium- and low-volume, which means the generalization, instead of centralization phenomenon. Therefore, the bandwagen effect did not exist.

The proportion of surgical volume of major surgical types, as well as MUS, by female surgeons increased, which may be due to more female medical graduates in Taiwan (similar in United State, and Japan). The other explanation is same-gender preference of patients, due to religious beliefs, cultural background, motional relationship, past experiences, shyness for sensitive pelvic examinations.

Conclusion

There is significant surgical trend change of SUI surgeries among different hospital levels, surgical volume surgeons, and surgeon gender during study time-frames. This implied the spreading of surgical skills and performance, as well as the characters of health providers.

A bio-psycho-social model of SUI surgery paradigm shift draws our attention to many variables about thee surgical types, in addition to traditional bladder compliance, and urethral competency. This may have a great influence on patient and healthcare provider for the choice of SUI surgery.

Reference

1. Hsieh WL, Huang CC, Chou ECL, Lo TS, Long CY, Wu MP *: A time-frame comparison study of surgical volume shifts on female primary stress urinary incontinence surgery. International Urogynecology Journal 2023;34 (7), 1453-1463.
2. Zacche MM, Mukhopadhyay S, Giarenis I. Changing surgical trends for female stress urinary incontinence in England. Int Urogynecol J. 2019;30(2):203-209.

Fig. 1 The chronological time-frame shift

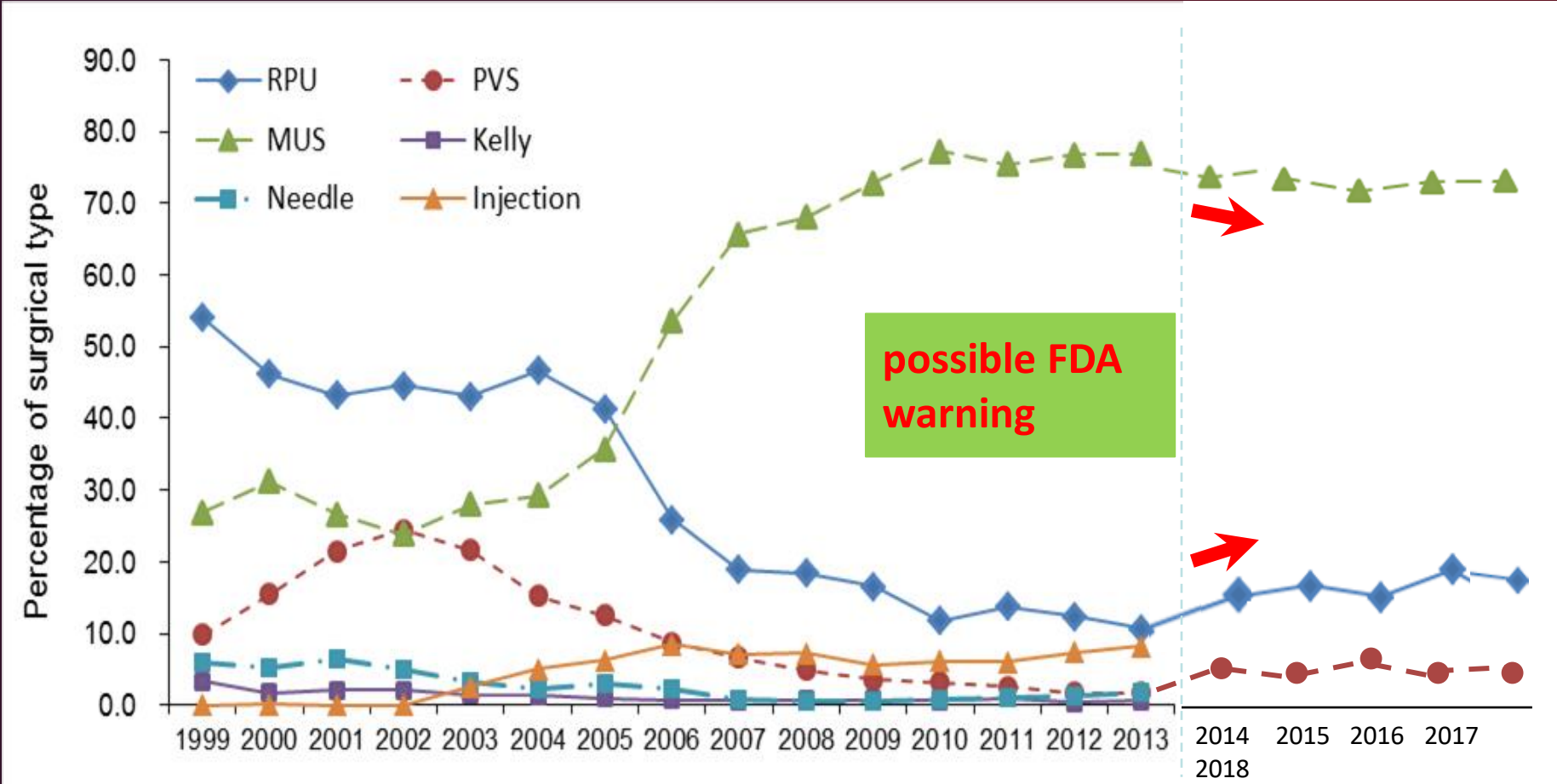


Fig. 2 primary versus repeat SUI surgery

| | Repeat | | | | | | | |
|----------|----------|---------|---------|--------|-----|---------|-----|---------|
| | RPU open | | RPU LSC | | PVS | | MUS | |
| | No. | (%) | No. | (%) | No. | (%) | No. | (%) |
| Primary | | | | | | | | |
| RPU open | 51 | (29.65) | 3 | (1.74) | 14 | (8.14) | 97 | (56.40) |
| RPU LSC | 11 | (35.48) | 2 | (6.45) | 2 | (6.45) | 15 | (48.39) |
| PVS | 19 | (26.39) | 1 | (1.39) | 18 | (25.00) | 29 | (40.28) |
| MUS | 23 | (13.53) | 0 | (0.00) | 17 | (10.00) | 108 | (63.53) |

Fig. 3 surgeon preference

| Specialty | Same specialty | | |
|------------|----------------|-----|---------|
| | No. | No. | (%) |
| Gynecology | 368 | 309 | (83.97) |
| Urology | 191 | 137 | (71.73) |
| Others | 4 | 2 | (50.00) |
| All | 563 | 448 | (79.57) |

| | Same-surgeon | | |
|------------|--------------|-----|---------|
| | No. | No. | (%) |
| Gynecology | 368 | 163 | (44.29) |
| Urology | 191 | 114 | (59.69) |
| Others | 4 | 1 | (25.00) |
| All | 563 | 278 | (49.38) |

Fig. 4 hospital level

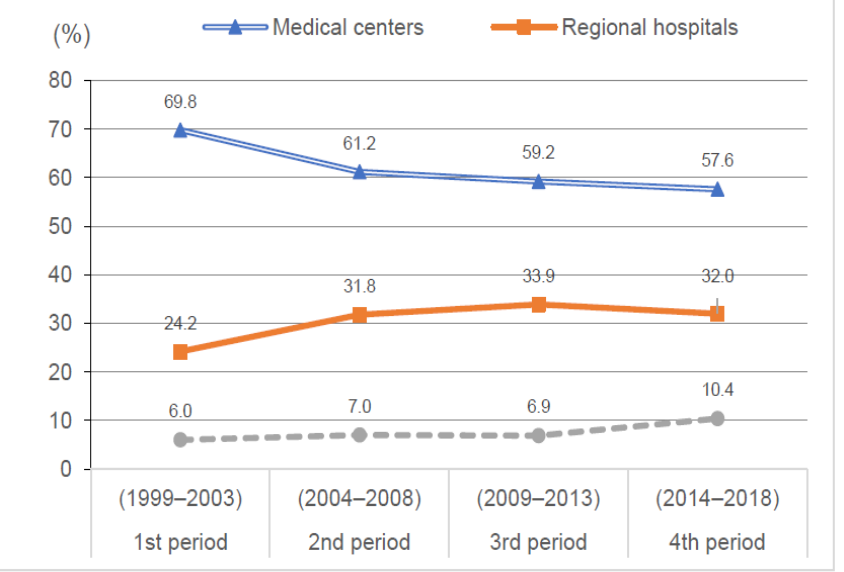


Fig. 5 surgical volume

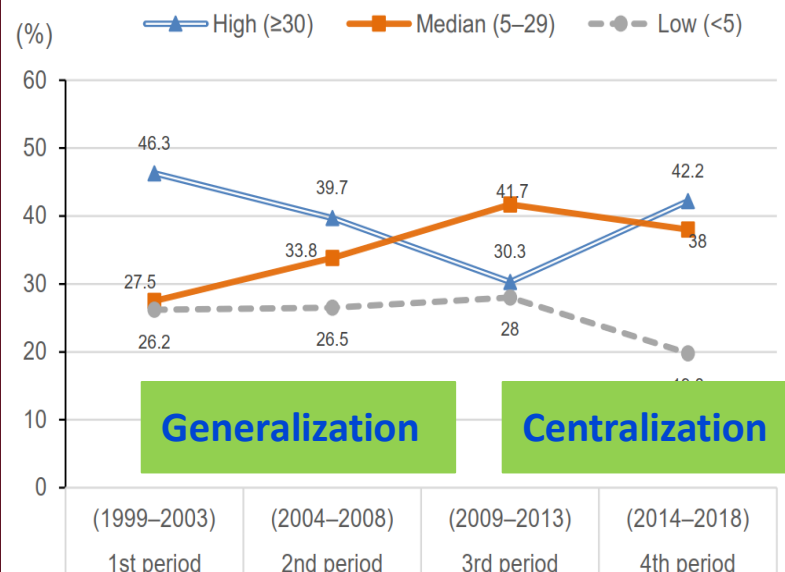


Fig. 6 surgeon gender

