THE EFFECT OF PREOPERATIVE PELVIC FLOOR MUSCLE TRAINING ON INCONTINENCE PROBLEMS AFTER RADICAL PROSTATECTOMY: A META-ANALYSIS

Ervandy Rangganata[1], Harrina Erlianti Rahardjo[1]
[1]Department of Urology, Cipto Mangunkusumo Hospital-Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia

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Abstract

- **Purpose:** To evaluate whether additional pelvic floor muscle training (PFMT), which began before radical prostatectomy and resumes immediately after catheter removal, will significantly improve urinary incontinence after radical prostatectomy (RP).
- **Materials and Methods:** We reviewed articles obtained from MEDLINE, CENTRAL, EBSCOHost, CINAHL, and Elsevier from July – August 2020, which compared preoperative PFMT with postoperative PMFT or non-PFMT, with continence incidence parameters. There were no restrictions on the definition of incontinence, treatment regimens, and RP surgical approach. The risk of bias was assessed using the Cochrane Risk of Bias Assessment Tool. A meta-analysis was also carried out to pool the effect estimates.
- **Results:** We included 12 eligible studies in this review, 11 of which we included in the meta-analysis. The PFMT initiated preoperatively significantly reduced the incidence of persistent urinary incontinence at 1, 3, and 6 months postoperatively with an OR of 0.58 (95% CI, 0.41–0.81), 0.57 (95% CI, 0.43–0.74), and 0.38 (95% CI, 0.17-0.83). There was no difference in improvement in patients' incontinence at 12 months postoperatively [OR = 1.31 (95% CI, 0.65-2.63)].
- **Conclusion:** PFMT initiated before radical prostatectomy significantly reduced the incidence of urinary incontinence in the first, third, and sixth months postoperatively. At 12 months postoperatively, additional preoperative PFMT did not cause a significant difference in urinary incontinence incidence.

Introduction

- Persistent and disturbing urinary incontinence after prostatectomy is a commonly reported side effect, with an incidence rate of 1% to 40% postoperatively.
- Several studies recommend delaying invasive urinary incontinence therapy at least one year postoperatively. Therefore, behavioral therapy was chosen in several cases as an alternative.
- This noninvasive behavioral therapy consists of diet modification, bladder training, PFMT, biofeedback, and functional electrical stimulation.
- Several studies had shown a significant role for PFMT when it is initiated before surgery and/or early postoperatively (< 6 weeks postoperatively).

Methods and Materials

- We reviewed articles obtained from MEDLINE, CENTRAL, EBSCOHost, CINAHL, and Elsevier from July – August 2020, which compared preoperative PFMT with postoperative PMFT or non-PFMT, with continence incidence parameters.
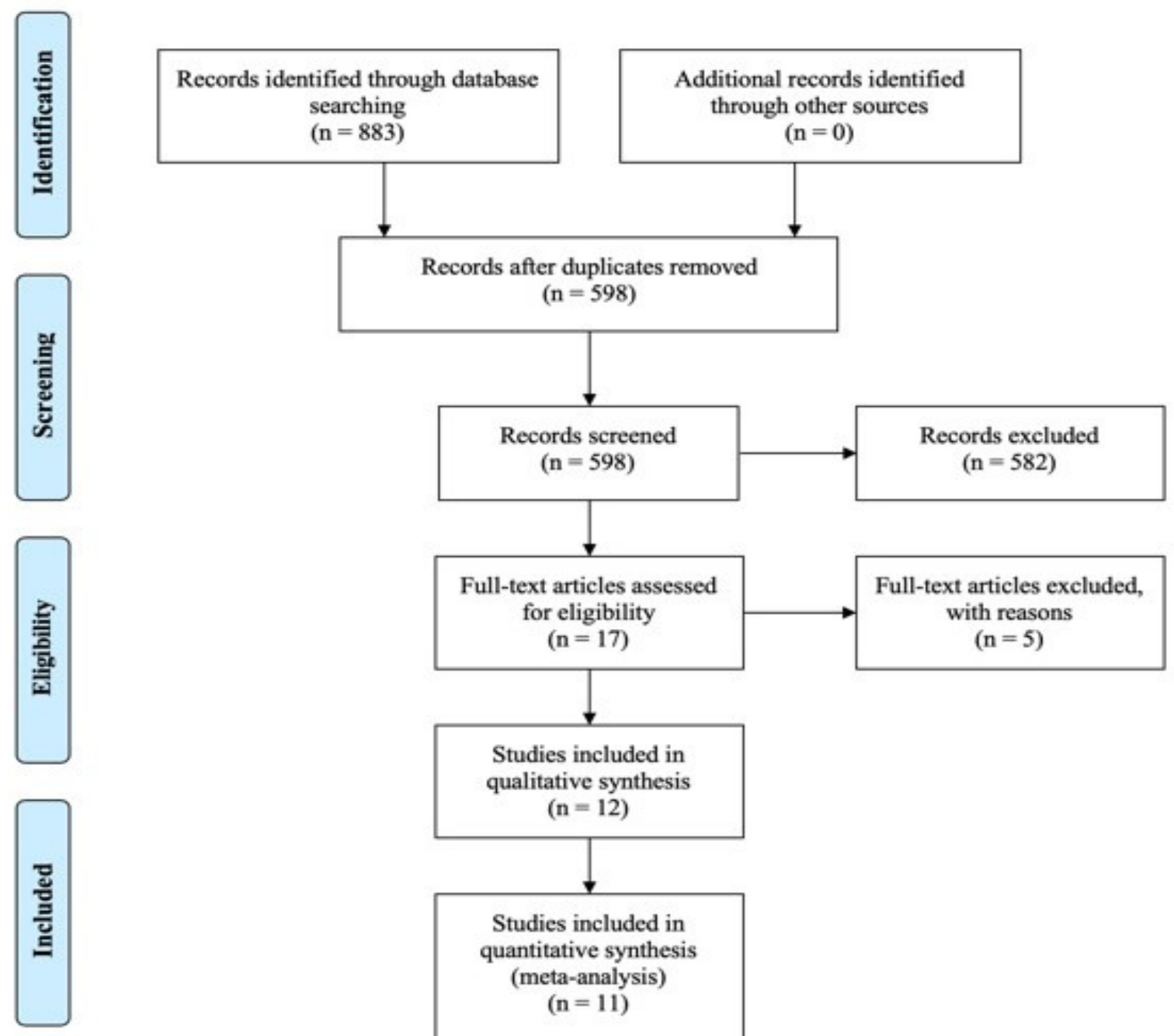- The risk of bias was assessed using the Cochrane Risk of Bias Assessment Tool.

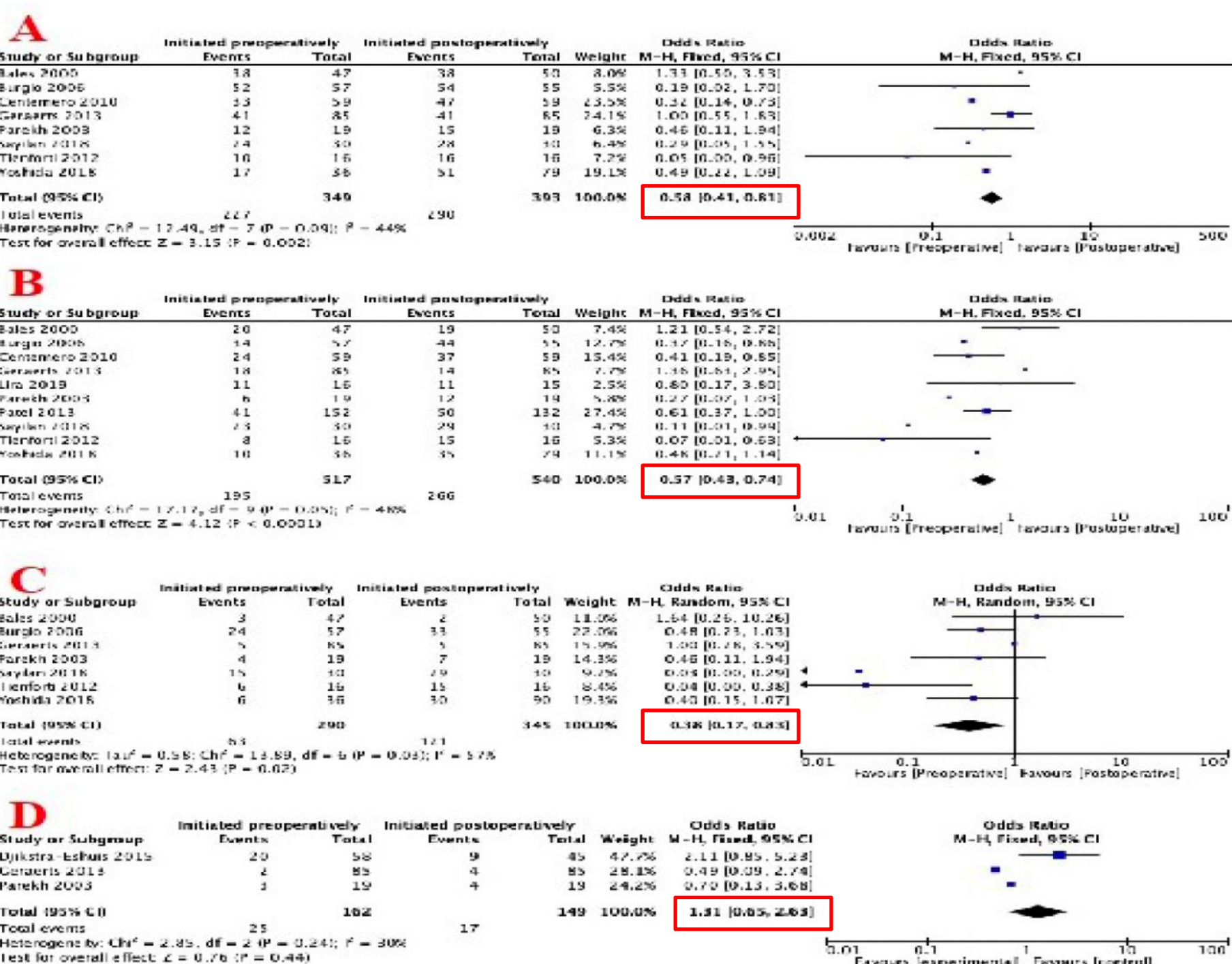**Figure 1.** PRISMA flow chart

Figure 3. Forest plot shows odds ratio of getting incontinence after radical prostatectomy at several time points: **(A)** 1 month; **(B)** 3 months; **(C)** 6 months; and **(D)** 12 months.

Results

12 studies
11 RCTs and 1 quasi-RCT study

1348 patients

- Overall, studies had a high risk of performance bias caused by the impossibility of participants and personnel blinding.
- A large variety of interventions given to patients in each study was generally based on each health center's protocol.
- **The PFMT initiated preoperatively significantly reduced the incidence of persistent urinary incontinence at 1, 3, and 6 months postoperatively with an OR of 0.58 (95% CI, 0.41–0.81), 0.57 (95% CI, 0.43–0.74), and 0.38 (95% CI, 0.17-0.83).**
- **There was no difference in improvement in patients' incontinence at 12 months postoperatively [OR = 1.31 (95% CI, 0.65-2.63).**

Discussion

- Detrussor overactivity is an incontinence pathophysiology that is corrected by PFMT.
- Several clinical studies have proven that the strength of PFM correlates with incontinence and that PFMT increases the strength of PFM can effectively speed up the recovery of incontinence in patients post radical prostatectomy.
- In this study, we found that PFMT carried out before radical prostatectomy significantly reduced the risk of persistent urinary incontinence at 1, 3, and 6 months after radical prostatectomy, compared to patients who underwent PFMT only after surgery or did not undergo PFMT at all.
- At 12 months postoperatively, the control group could achieve the same continence rate as the experimental group, indicating that almost all patients in both groups had regained continence.
- Some limitations of the study were the heterogeneity due to the large variety of PFMT regimens in each study, the diversity of definitions of the "intervention group", "incontinence", and "continence" in each study, the variation of surgery techniques, frequency of PFMT intervention, time of initiation of preoperative and postoperative PFMT, and participant blinding was not possible.

Conclusions

- PFMT initiated before radical prostatectomy significantly reduced the incidence of urinary incontinence in the first, third, and sixth months postoperatively.
- At 12 months postoperatively, additional preoperative PFMT did not cause a significant difference in the incidence of urinary incontinence.

References

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