

Is Bladder Training by Clamping Before Removal Necessary for Short-Term Indwelling Urinary Catheter Inpatient? A Systematic Review and Meta-analysis

戴仲宜

106.1.3

Background

- At least 15% ~ 25% of inpatients have indwelling urethral catheters, mostly on a short-term basis.
- Approximately 40% of nosocomial infections originate from the urinary tract , and 80% occur after placement of urinary catheters.
- Prolonged urinary catheter use increased bacteriuria by 3% ~ 10% per day.
- Clamping the indwelling urinary catheter before removal was first recommended by Ross in 1936.
 - The clamping process is supposed to strengthen the bladder detrusor muscle, improve muscle tone and sensation of the bladder, and stimulate normal filling and emptying of the bladder.



作者：婦產科衛教護理師劉瑩娟整理

一、目的：

- 1.促進手術後恢復正常排尿功能
- 2.改善產後排尿功能障礙

二、適用對象：

- 1.婦女尿失禁手術後解尿困難
- 2.陰道前壁修補手術婦女
- 3.產後解尿困難者

三、膀胱訓練時間：

- 1.婦科手術後第2天開始訓練為期二天。
- 2.產後解尿困難者訓練為期一天。

四、插尿管的膀胱訓練方法：

- 1.接受尿管排尿訓練時，請您利用管夾或橡皮筋將尿管反折綁緊。
- 2.綁約2小時後鬆開導尿管15分鐘，讓尿液流到尿袋內15分鐘後將尿管反折綁緊。如此重複操作。（剛開始訓練則依病人的忍耐度來決定時間，若感到膀胱漲並有解小便的感覺時，就可以鬆開管夾或橡皮筋，不必等到2小時）。
- 3.原則上手術後第2天及第3天訓練，夜間睡覺時則不訓練，以免忘記放開管夾，而導致膀胱過漲，傷害到膀胱。



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Review Article

Is Bladder Training by Clamping Before Removal Necessary for Short-Term Indwelling Urinary Catheter Inpatient? A Systematic Review and Meta-analysis



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步驟1

研究探討的問題為何？

研究族群 / 問題 (P)

Adult inpatient Indwelling urinary catheter up to 14 days

介入措施 (I)

Regular clamp on urinary catheter and clamp off before removal

比較 (C)

Keeping the urinary catheter on free draining until removal

結果 (O)

Recatheterization after removal of indwelling urinary catheter; Timing of the first void; Volume of first voiding; incidence of urinary retention; and urinary tract infection

步驟2 系統性文獻回顧的品質如何？(FAITH)

Find - 研究是否找到所有的相關證據

(MeSH terms); truncation symbols were used to broaden the search strategy. Eight databases were independently searched: Medline, EMBASE, CINAHL, PubMed, PsycINFO, ProQuest, Chinese Electronic Periodical Service and the Cochrane Controlled Trials Register. Search filters included English or Chinese language, and adult participants. The search was also limited to papers published prior to May 2016. Citation search of relevant published studies and systematic reviews were also used to locate relevant studies that may have been missed in the strategy described above.

評讀結果： ☐是 ☒否 ☐不清楚

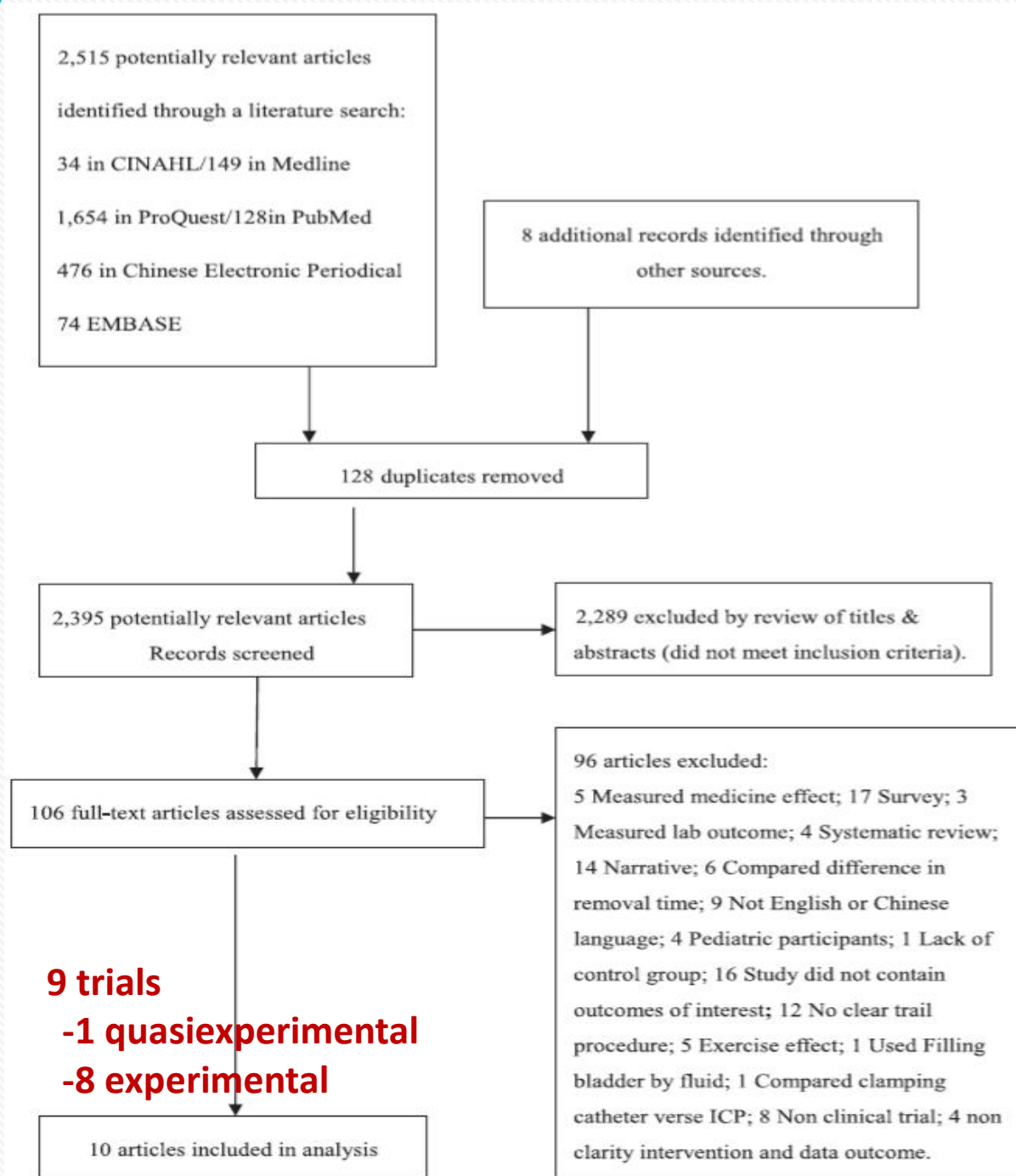


Figure 1. PRISMA flowchart for inclusion process. Note. ICP = Intermittent Catheterization Program.

Appraisal - 文獻是否經過嚴格評讀

Quality assessment of selected studies

Each of the two authors independently evaluated the quality of methodology by the Jadad scoring system and the risk of bias in each study. The possible range of Jadad scores was 0–5, and a score of 3–5 indicated high quality [19].

Data extraction and management

After confirming the eligibility of studies, two reviewers independently extracted the data from the included studies. The parameters extracted for each study included: study reference (author, year of publication), study design, setting, participants (number, mean age), types of interventions, types of control group, and outcome measures. The findings are summarized in Table 2.

評讀結果：✓是 □否 □不清楚

Table A1 Jadad scale for reporting randomized controlled trials.

Item	Maximum points	Description	Examples
Randomization	2	<p>1 point if randomization is mentioned</p> <p>1 additional point if the method of randomization is appropriate</p> <p>Deduct 1 point if the method of randomization is inappropriate (minimum 0)</p>	<p>“The patients were randomly assigned into two groups”</p> <p>The randomization was accomplished using a computer-generated random number list, coin toss or well-shuffled envelopes</p> <p>The group assignment was accomplished by alternate assignment, by birthday, hospital number or day of the week</p>
Blinding	2	<p>1 point if blinding is mentioned</p> <p>1 additional point if the method of blinding is appropriate</p> <p>Deduct 1 point if the method of blinding is inappropriate (minimum 0)</p>	<p>“The trial was conducted in a double-blind fashion”</p> <p>Use of identical tablets or injectables, identical vials</p> <p>Use of tablets with similar looks but different taste</p> <p>Incomplete masking</p>
An account of all patients	1	The fate of all patients in the trial is known. If there are no data the reason is stated	“There were 40 patients randomized but the data from 1 patient in the treatment group and 2 in the control were eliminated because of a break in protocol”

Included - 是否只納入具良好效度的文章

First author, year & country	Patients	Average Duration of indwelling	Sample size		Intervention description	Main findings	Jadad score
			EG	CG			
Wahyu 2011 USA [28]	Stroke acute stage patients	NA	7	7	day 2, Q4h clamp until bladder scanner showed normal bladder function (residual amount < 150 mL) then remove catheter. CG: Free draining and removal on postsurgery day 2.	No difference between groups. 2. Recatheterization: EG & CG had similar rates.	1
Chou 2014 China [26]	Gynecology-related surgery	NA	114	116	EG: Clamping catheter. CG : Free draining. EG: Clamping schedule from postsurgery day 1. CG: Free draining.	Residual urine amount: EG had less than CG did. Recatheterization: EG 3 cases, CG 5 cases. Patients' perceived symptoms: In EG, 3 cases, & in CG 4 cases of felt discomfort. First time voiding ($M \pm SD$): EG, 2.07 ± 0.51 h; CG, 2.09 ± 0.55 h. First voiding volume (ml) ($M \pm SD$): EG 253.94 ± 39.85 , CG 255.88 ± 50.36 .	2
Fanfani 2015 Italy [27]	Radical hysterectomy	EG: 4 d CG: 3 d	55	56	EG: Clamping schedule from postsurgery day 3, Q3h clamp then removal on day 4. CG: Free draining then removed on day 3.	Recatheterization: 11 cases each in the two groups. UTI: 5 cases each in the two groups.	4

評讀結果： ☐是 ☒否 ☐不清楚

Total up - 作者是否以表格和圖表「總結」試驗結果

Table 2 Description of Included Studies (N = 10).

First author, year & country	Patients	Average Duration of indwelling	Sample size		Intervention description	Main findings	Jadad score
			EG	CG			
Oberst 1981 USA [23]	Bowel cancer patients	6 d	52	58	EG: Clamp schedule from postsurgery day 4 to day 10, remove progressive clamping; each clamping has a 5-min release draining. CG: Free draining and removed on postoperative day 10.	1. Voiding dysfunction: EG had lower voiding dysfunction rate than CG did at removal of catheter immediately & at discharge. 2. First voiding time: EG had shorter first voiding time than CG did.	3
Williamson 1982 USA [21]	Ongoing surgery female patients & indwelling catheter for at least 36 h	NA	4	4	EG: Q3H clamping then release for 5 min. CG: Free draining.	1. First voiding time: EG had shorter first voiding time than CG did. 2. Residual urine amount: EG had less residual urine than CG did. 3. Patients' perceived symptoms: In EG, 1 patient felt burning & 2 complained of bladder filling during the first voiding but did not feel pressure or pain. In CG 1 patient experienced bladder and sphincter spasm.	2
Bergman 1987 USA [24]	Urodynamic stress urinary incontinent	CG: 3.4 d EG: 3.5 d	44	45	EG: Clamping schedule from postsurgery day 1, progressive clamping & each clamping has a 15-min release draining. CG: Free draining.	1. Length of catheterization: EG was similar to CG in retention time of urinary catheter. 2. UTI: EG had higher rate than CG.	3

評讀結果：✓是 □否 □不清楚

Heterogeneity異質性 - 試驗的結果是否相近

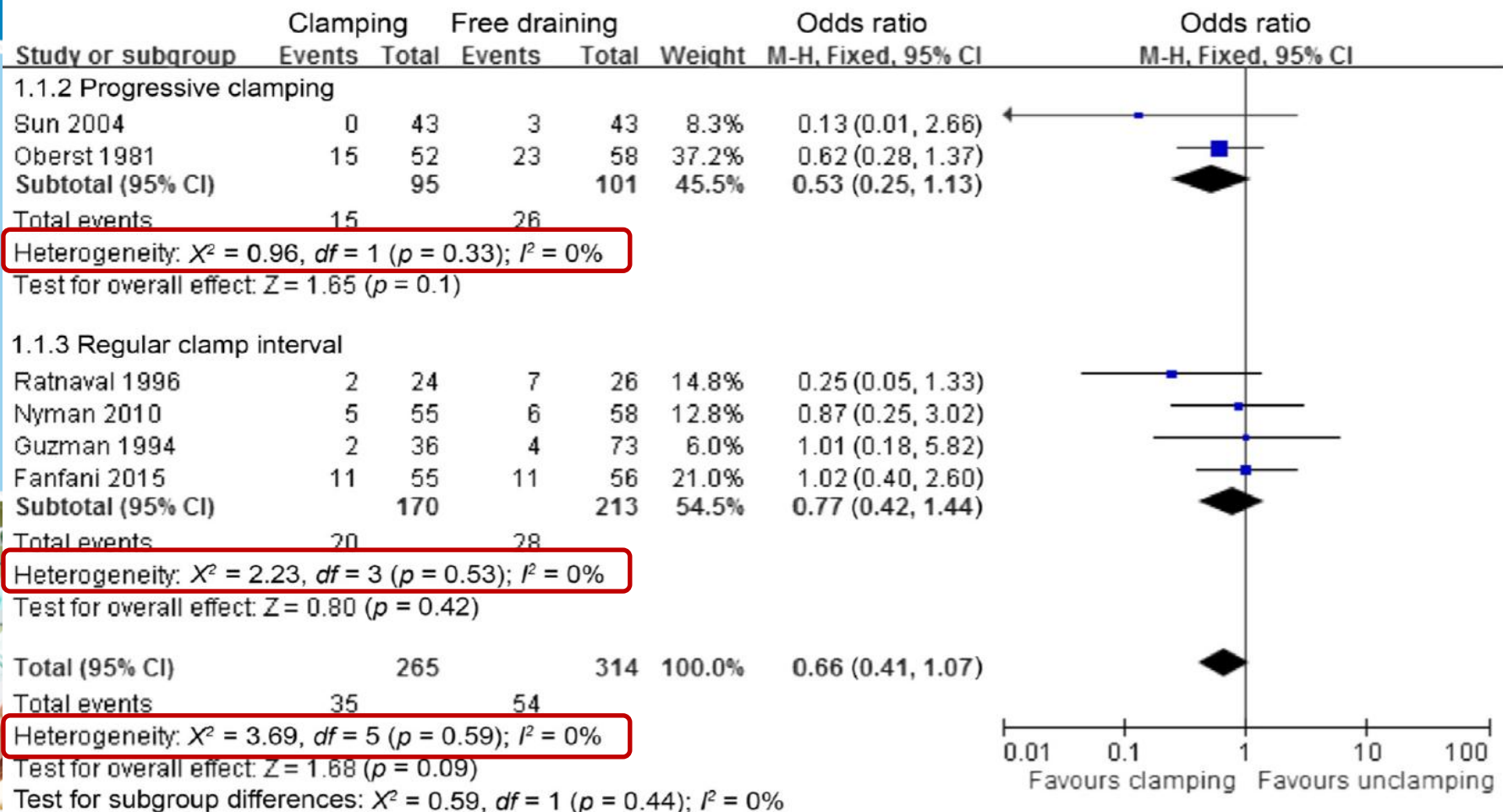


Figure 2. Forest plot for recatheterization. Note. CI = confidence interval.

評讀結果：□是 ✓否 □不清楚

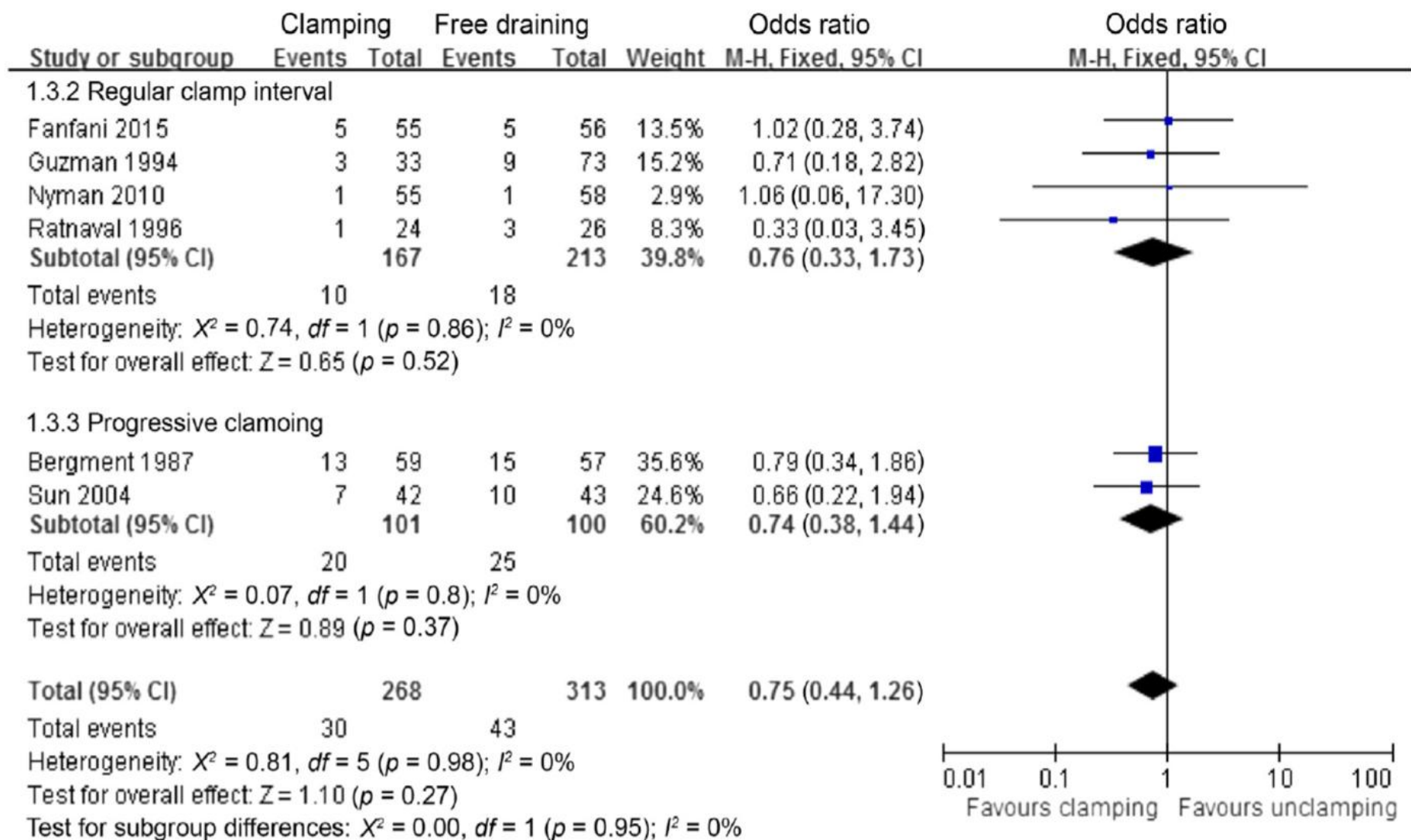


Figure 3. Forest plot for urinary tract infection. Note. CI = confidence interval.

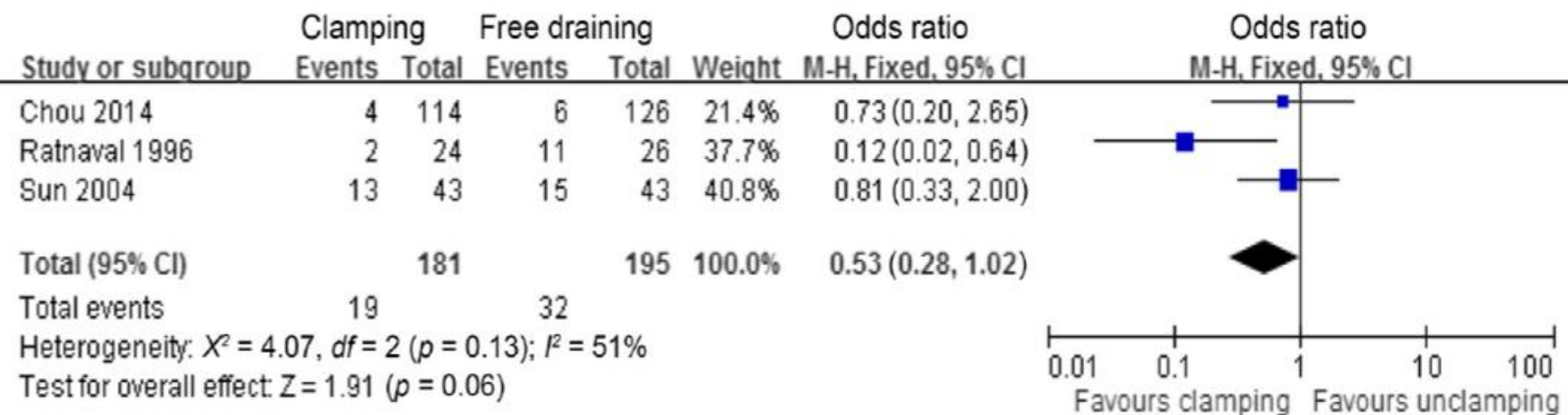


Figure 4. Forest plot for patients' perceptions of voiding-related symptoms. Note. CI = confidence interval.

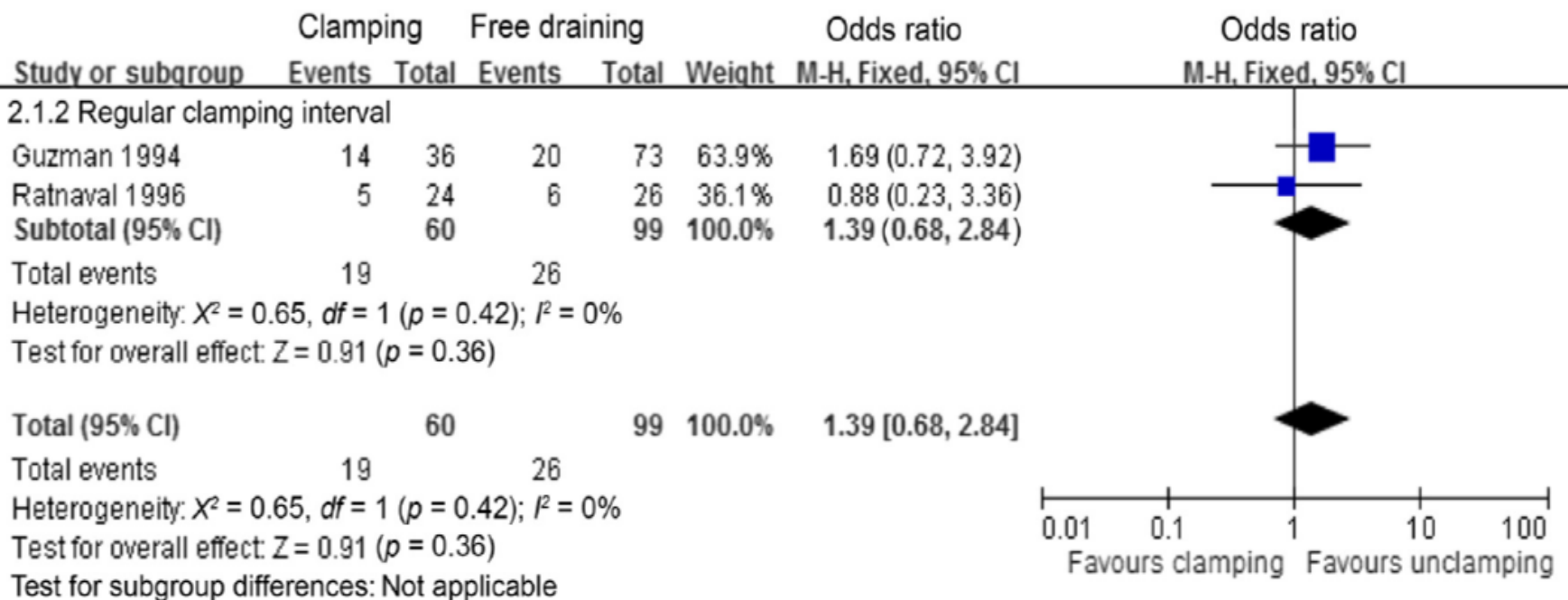


Figure 5. Forest plot for urinary retention. Note. CI = confidence interval.

Conclusion

- From on the review, no significant difference was found between the clamping and unclamping groups in the outcomes of recatheterization, urinary retention, UTI and patients' subjective perceptions of voiding related symptoms.
- This review indicated that bladder training by clamping prior to removal of urinary catheters is not necessary in short-term catheter patients.
- Clamping carries the risk of complications such as prolonging urinary catheter retention and urinary tract injury.





**Cochrane
Library**

Cochrane Database of Systematic Reviews

Strategies for the removal of short-term indwelling urethral catheters in adults (Review)

Griffiths R, Fernandez R



JCN *Journal of
Clinical Nursing*

International Perspectives on
Healthcare Practice

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Original Article

The effect of clamping the indwelling urinary catheter before removal in cervical cancer patients after radical hysterectomy

Yao Gong, Ling Zhao, Lin Wang, Fulan Wang

Accepted manuscript online: 14 September 2016 [Full publication history](#)

討論

- 短期留置導尿管病人在移除前，是否須執行膀胱訓練以防需再度置回？



Thanks

