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Urinary Retention Following the Gynecologic Surgeries and Effect of Foley Catheter Clamping on its Prophylaxis

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In this cross-sectional study urinary retention after gynecologic surgeries and effect of foley catheter clamping on its prophylaxis, were studied. During the study from 21 March, 2002-20 March, 2004 one hundred patients referred to Assali women's hospital of Khorramabad city were selected as sample size. Data such as patients' age, gravid, kind of their previous surgeries, existence of foley catheter clamping in their prescriptions were gathered using observation and interview method, then the data were analyzed. Results showed that the most frequency from view point of age of exposure to urinary retention after surgery are age groups of 25-35 (54%). The most gravid grade related to urinary retention was G4 grade (38%). The most common cause of urinary retention was anterior-posterior colporrhaphy (22%). For treatment of urinary retention, Intermittent catheterization, Muscle relaxants and Intermittent catheterization and muscle relaxants have been used. Intermittent catheterization increases the risk of urinary tract infection. In 84% of the patients, foley catheter clamping hadn't been done and 16% of those how had it suffered again from urinary retention. It means that clamping of foley catheter has not an effect of 100% in prevention of urinary retention. Because of the complex etiology of postoperative urinary retention, it is unlikely that clamping of foley catheter can easily resolve they problem.

Key words: Urinary retention, foley catheter clamping, posterior and anterior colporrhaphy

INTRODUCTION

One of the often overlooked complications of ambulatory gynecologic surgery is urinary retention, which occurs in 4-25% of surgeries. This phenomenon often prevent or delays discharge in cases where patients could otherwise leave the hospital. Several hours of urinary retention require recovery room resources that can significantly increase the cost associated with same-day surgery. Further, it can be frustrating and uncomfortable for patients, decreasing patient satisfaction. Patients who are discharged without voiding run the risk of unrecognized urinary retention, which can cause severe pain, readmission and the potential for permanent bladder damage (Rock and Thompson, 1997).

Post operative urinary retention is a recognized but poorly understood event. It likely is related to many factors including patient anxiety, traumatic instrumentation, bladder over distention, diminished bladder sensation, decreased bladder contractility, decreased micturition reflex activity and nociceptive inhibitory reflexes. Many pharmacological approaches have been devised to minimize postoperative urinary retention. Few of them are well studied.

Several authors have suggested that the anxiolytic and skeletal muscle-relaxing properties of benzodiazepines may be helpful in treating or preventing acute urinary retention (Berek *et al.*, 2002).

Clamping of foley catheter (3 h clamping and 1 h releasing) causes strengthening of bladder detrusor muscle and helps to urinate after urinary retention. Unfortunately, no randomized studies of foley catheter clamping for this purpose have been reported. This study was designed to test whether clamping of foley catheter can decrease the incidence of postoperative urinary retention after gynecologic surgeries.

MATERIALS AND METHODS

This cross-sectional research was carried out on women with urinary retention referred to women's hospital from 21 March, 2002-20 March 2004.

Patients who had undergone surgeries of anterior-posterior colporrhaphy and hysterectomy (abdominal and vaginal) and anterior-posterior colporrhaphy, were divided into two groups. For the first group foley catheter, before removing at the third day of surgery, was in the form of 3 h clamping and 1 h without clamping, then it was removed. For the second group foley catheter was removed without clamping at the third day of the surgery.

Then all the refereed patients with urinary retention, were followed up, their information was recorded, then referring to their previous files, their data such as kind of surgery, age, gravid, orders of clamping of foley catheter and drugs were gathered and analyzed.

RESULTS

One hundred patients were enrolled in the study. Results showed that age of exposure to urinary retention after surgery are age group of 28-35 (54%). The most gravid grade related to urinary retention was G4 (38%) (Table 1). The most common cause of urinary retention was anterior-posterior colporrhaphy (22%).

The more the area of manipulation and surgery is closer to the bladder neural system, the more probability of urinary retention will be (Table 2).

For example vaginal hysterectomy has been 1.7 times more than abdominal hysterectomy.

For treatment of urinary retention to use Diazepam and other muscle relaxants, intermittent catheterization and intermittent catheterization and muscle relaxants such as Diazepam and Baclofen have been used (Table 3).

In 84% of the patients, foley catheter clamping had not been done and 16% of those how had it suffered again from urinary retention (Table 3).

That is clamping of foley catheter had not an effect of 100% in prevention of urinary retention.

Table 1: Demographic characteristics of patients in the study group

Variables	Number	Percent
Age distribution		
15-35	54	54
25-35	33	33
35-45	13	13
Gravida		
G1	12	12
G2	20	20
G3	30	30
G4	38	38

Table 2: Outbreak of urinary retention based on the kind of surgery

Kind of surgery	No. of cases with urinary retention	Frequency of patient	
		No.	Percent
Cystocele-rectocele perineorrhaphy	70	318	22.00
Hysterectomy (abdominal vaginal)	15	150	10.00
Vaginal delivery	7	4900	0.14
Cesarean	8	2000	1.10
Total	100	7368	33.24

Table 3: Kind of treatment of urinary Retention in 100 patients

Kind of treatment frequency	Catheterization and muscle relaxant			
	Foley catheter clamping	and muscle relaxant	Muscle relaxant	Intermittent cathentization
Absolute	16	18	48	34
Percent (%)	16	18	48	34

DISCUSSION

The factors responsible for postoperative urinary retention are complex often conflict. Retention rates can be as high as 20-50% after orthopedic- (Peterson *et al.*, 1991), anorectal, inguinal and gynecologic procedures (Pavlin *et al.*, 1999)

In present study the percent of uropathy after Gynecologic procedures (cystocele and rectocele surgeries) was the highest percent that is 22%.

In a study by (Pereira-Arias *et al.*, 1995) the rate of uropathy has been 13-14%. This different indicates that cystocele and rectocele (CRP) surgery are done more in our country than the other areas.

Another study by Petrus *et al.* (1994) urinary retention after hysterectomy was studied and it was observed that in the patients whom continuing analgesia has been used to control the pain and those who had vaginal hysterectomy, the percent of urinary retention has had an increase of 5.7 times.

Therefore, urinary retention after hysterectomy can be reduced by use of suprapubic cystostomy without using the analgesics (Andersen *et al.*, 1985).

In present study rate of urinary retention after vaginal-Abdominal hysterectomy was 10%.

This ration in vaginal hysterectomy is 1.7 times more than abdominal hysterectomy, that is, the more the area of manipulation and surgery is closed to the bladder neural system and urethra, the more the possibility of urinary retention will be.

In a study by Saltz and Shackles (1991) (500 women, labor and cesarean) the rate of uropathy after vaginal delivery and cesarean were reported 17 and 15%, respectively.

Forceps Instrument and *Epidural analgesia* were reported as the risk factor of these disorders.

In present study the percent of these disorders has been 7% after vaginal delivery and 8% after cesarean, the reason of its low rate is the lack of too much use of epidural analgesia and forceps instrument in the labors and cesarean section.

The literature reports additional factors that could influence postoperative voiding, these include the day the voiding trial occurs, postoperative catheter regimes, intravenous fluids, over-hydration, anesthesia and type of surgery (Bombieri and Freeman, 2003; Kelleher, 2002; Kleeman *et al.*, 2002; Ringdal *et al.*, 2003).

Some reports suggest medications such as anticholinergics, sedative, intravenously administered analgesics and neuroleptics, all commonly used during continence surgery, can alter normal bladder activity and result in postoperative urinary retention (Bodker and Lose, 2003; Chanda and Johnston, 1999).

Gonullu *et al.* (1999) shown a benefit from prazosin treatment where as others have not (Cataldo and Senagore, 1991).

The anticholinesterase distigmine bromide has been found to be ineffective and even dangerous (Savona-Ventura *et al.*, 1991; Hameed and Charles, 1994).

Phenoxybenzamine an α -blocker, has shown promise for some orthopedic and gynecologic procedures but not for others (Tammela, 1986; Tammela *et al.*, 1987; Livne *et al.*, 1983) Warm water baths have been studied, with disappointing results (Shafik, 1993).

In present study no one of these drugs was used, we used muscle relaxants such as Diazepam and Baclofen which had a good result too.

The use of clamping of foley catheter for urinary retention is not common. Indeed, references to its use for this purpose can not found in general gynecology texts.

Unfortunately, no well-designed studies have been performed to study its efficacy.

In present study clamping of foley catheter in comparison with lack of clamping of foley catheter been effective in reduction of urinary retention, as well as it has reduced the intermittent catheterization by the patient or physician which increases the risk of infection but this effect is not 100%. Because of the complex etiology of postoperative urinary retention, it is unlikely that clamping of foley catheter can easily resolve this problem. As suggested, the time of day for catheter remove is often done as a preference of nursing or medicine (Kellehew, 2002; Lilibridge and Watt, 2000). In a urologic setting, Crowe *et al.* (1994) noted when the catheter is removed at midnight, the time to first void was longer and void volume was significantly greater. Lilibridge and Watt (2000) in a descriptive study which included men and women hospitalized for medical and surgical reasons requiring urinary catheters concurred with these findings.

Despite this information many units continue to remove the catheter between 0600 and 0700 h on postoperative day 1 to 4.

Patients age has been implicated in numerous studies as critical to successful voiding following surgery, (Ringdal *et al.*, 2003) noted the elderly patient (male or female) was at a higher risk for postoperative urinary retention due to a lower functional bladder capacity.

Smith and Cardozo (1997) also suggested the risk of moderate severe postoperative voiding dysfunction increased progressively with increasing age, with about 12% for those aged less than 50 years, 25% for those aged 50 to 64 years and 50% for those aged greater than 65 years.

Given these figures, Smith and Cardozo (1997) recommend that following continence surgery women 65 years and older should have an catheter for 7 to 10 days prior to a trial of void. Available guidelines rarely,

however, account for patient age and appear to apply across all ages.

But in our study 54% of patients with urinary retention were at the age group of 25-35 years.

In summary, we found an effect on postoperative voiding times from the clamping of foley catheter, other factors previously suggested to affect postoperative voiding such as narcotic use, intravenous fluid use and length or type of procedure were correlated in this study with urinary retention.

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