

PREVALENCE OF STRESS URINARY INCONTINENCE AFTER VAGINAL HYSTERECTOMY IN EASTERN NEPAL

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ABSTRACT

Introduction

Pelvic organ prolapse is reproductive health morbidity in our country and vaginal hysterectomy is one of the most commonly performed surgery. Urinary incontinence is a common problem after hysterectomy.

Objective

This study assesses the prevalence of stress urinary incontinence after vaginal hysterectomy and the factors associated for stress urinary incontinence after hysterectomy.

Methodology

This is a hospital based descriptive, prospective cross-sectional study conducted for a period of 1-year from January 2019 to January 2020. All patients who underwent vaginal hysterectomy for pelvic organ prolapse were included in the study. In total, 100 patients were admitted during the study period. Data was recorded in pre-designed performa, and patients were followed up with telecommunication after a month of post-operative period regarding occurrence of stress urinary incontinence. Data were analysed using MS excel software. The mean, standard deviation and frequency were obtained and Fisher's exact test were done to find the association between stress urinary incontinence and risk factors.

Results

Among the total 100 patient studied, twenty-one (21%) patients complained of post-operative stress urinary incontinence. Stress urinary incontinence was not found to be significantly associated with vaginal hysterectomy, smoking habit, type of work or stage of pelvic organ prolapse. However, it was significantly associated with advancing age.

Conclusion

Stress urinary incontinence was significantly associated with advancing age but the association with smoking habit, type of work, stage of pelvic organ prolapse was not statistically significant.

KEYWORDS

Pelvic organ prolapse; stress urinary incontinence; vaginal hysterectomy



INTRODUCTION

Pelvic organ prolapse is one of the major gynaecologic problems that affect the quality of life of many women worldwide, especially in geriatric population. Though, there are several surgical methods for correction of symptomatic prolapse, vaginal hysterectomy is the chosen method of surgical treatment in most of the cases worldwide.¹ Pelvic organ prolapse (POP) affects millions of women worldwide, with approximately 200,000 inpatient surgical procedures for prolapse performed annually in USA alone.^{4,5} A UNFPA study in Nepal estimated that approximately 10% of women in Nepal suffer from uterine prolapse.² The lifetime risk of undergoing pelvic floor surgery is estimated to be 11 percent.³

Hysterectomy is one of the most common surgical procedures performed in women. Several publications have previously suggested that hysterectomy is associated with the development of changes in urinary function, especially urinary incontinence.⁶⁻⁸ Hysterectomy may lead to nerve damage or pelvic support structures, that may increase risk of urinary incontinence.⁹⁻¹² The vaginal route for hysterectomy is becoming the route of choice in many conditions. Vaginal hysterectomy is associated with less morbidity than abdominal hysterectomy¹⁴⁻¹⁷; therefore, it might be expected that the contribution of vaginal hysterectomy to the occurrence of urge and stress urinary incontinence (SUI) is different from abdominal hysterectomy.

In Nepal, pelvic organ prolapse is considered major reproductive health morbidity. The prevalence of pelvic organ prolapse exceeds 10% in reproductive age group and is 24% in women aged 45 to 49.¹ However, the number of women seeking treatment by visiting hospitals is presumed to be just the tip of an iceberg. A large number of women in need of treatment go untreated in community as women feel ashamed and are reluctant to disclose their problem. Low socio-economic status of women in Nepalese also a major issue contributing to this. In order to combat, Ministry of Health's Family Health Division in collaboration with United Nation Population Fund (UNFPA) is providing free surgery for pelvic organ prolapse. Vaginal hysterectomy with pelvic floor repair is preferred surgery for symptomatic prolapse.¹⁹

There are only a few studies published on quality of life after hysterectomy in developed countries, and even fewer among developing countries. As Nepal has a high prevalence of POP, such studies will help understand the current situation and identify gaps for strengthening and improving treatment protocols and policies. This study will evaluate occurrence of stress urinary incontinence in women post vaginal hysterectomy and any associated factors responsible for this condition.

METHODOLOGY

This is a descriptive, prospective cross-sectional study conducted in Birat Medical College. The study was conducted for one-year duration from 2019 January to 2020 January after ethical approval from Institutional Review

Committee (IRC) of BMCTH was obtained. All the patients with pelvic organ prolapse admitted for vaginal hysterectomy and pelvic floor repair were included in the study after taking informed consent. Detailed history was taken and pre-operative examination was done in all patients as per hospital protocol. Pelvic organ prolapse examination was done before and after evacuation of bladder to exclude occult stress urinary incontinence, was then measured, and staged using POP-Q technique. All the information required were asked to the patients and noted as per Performa. Post-operatively, patients were discharged after evaluating well being as per the hospital protocol. All the patients were then communicated through telephone after one month and enquired regarding their well being, type of work they perform, smoking habits and occurrence of new onset of SUI. Duration of onset of stress urinary incontinence after hysterectomy was also noted. All the data were then recorded in MS excel sheet and analysed for mean, standard deviation and frequency across demographic variables. Association test was performed to evaluate between pre-operative stage of POP, age, smoking habit and type of work with post-operative SUI by using Fisher's exact test using SPSS software.

RESULT

In total, one hundred patients were included in the study. The median age of patients was 55 years with mean weight 49.74±6.4kg. The mean haemoglobin content of the patients pre-operatively was 11.2±1.17.

Table 1 shows 61% of the patients had more than four children. Only 5% of patients were found to be smokers and 13% had habit of alcohol consumption. Majority of the patients (71%) presented with stage 3 pelvic organ prolapse. Seventy seven (77%) patients were involved in non-labour work activity. Post-operative SUI was found in only 21% patient.

Table 1: Socio-demographic characteristics of the study subjects

Variables	Frequency (N=100)	Percent (%)	
Parity	Less than 4	39	39.0
	More than 4	61	61.0
Smoker	Yes	5	5.0
	No	95	95.0
Alcohol consumption	Yes	13	13.0
	No	87	87.0
Stage of POP	I	1	1.0
	II	24	24.0
	III	71	71.0
	IV	4	.0
Post-operative SUI	Present	21	21.0
	Absent	79	79.0
Type of post-operative work	Labour	23	23.0
	Non-Labour	77	77.0

The association of Stress Urinary Incontinence was analysed using Fisher's exact test. Variables like stage of prolapse, type of work, habits of smoking and alcohol consumption were not found to have significant association with post-operative stress urinary incontinence. Stress Urinary Incontinence was only found associated with age of patient (Table 2).

Table 2. Correlation of post-operative SUI with different variables.

	Variables	Significance (p-value)
Post-operative stress urinary incontinence (SUI)	Age	0.045
	Smoker	0.581
	Alcohol	0.139
	Type of work	0.246
	Stage of POP	0.431

DISCUSSION

The vaginal route for hysterectomy is becoming the route of choice for hysterectomy. It is also the preferred route for pelvic organ prolapse for non-descent uterus. Vaginal hysterectomy is associated with less morbidity than abdominal hysterectomy therefore it might be expected that the contribution of vaginal hysterectomy to the occurrence of urge and stress urinary incontinence is different to abdominal hysterectomy.²⁰⁻²² For this reason, only vaginal hysterectomy was taken as the study population in this study.

A study by Aoun and Roumeguère in 2015 has provided a comprehensive overview on postoperative lower urinary tract dysfunction.²³ According to their study, lower urinary tract dysfunction is a common finding (70–85% prevalence) after hysterectomy, and its most frequent long-term sequel is stress urinary incontinence (40% of cases) which is quite complex and challenging to manage. In this study, 21% of the patients complained of stress urinary incontinence post-operatively after vaginal hysterectomy.

Post-operative stress urinary incontinence was found to be significantly associated with increasing age in this study. This finding was consistent with a systematic review of 45 articles by Brown JS et al, that showed the symptoms of stress urinary incontinence after hysterectomy were increased in women aged 60 years or older by 60% compared with those younger than 60 years of age.²⁴ The biologically plausible rationale for the association between stress urinary incontinence and vaginal hysterectomy is surgical trauma caused when the uterus and cervix are severed from pelvic-floor supportive tissues at the time of hysterectomy.²⁵ Hysterectomy could interfere with the intricate urethral sphincter mechanism by damaging distal branches of the pudendal nerves and inferior hypogastric plexus,²⁶ but it might also result in changes of urethral and bladder neck support.²⁷

There are varying results from numerous studies regarding relationship between hysterectomy and stress urinary incontinence. There might be difference in type of study conducted, route of hysterectomy, competency of operating surgeons and post-operative care can be the factors for consideration.

Randomized controlled trial by Bhattacharya et al where duration of year after surgery was compared to simple hysterectomy irrespective of route and endometrial ablation for changes in urinary symptoms concluded that duration of follow up of 2 years or less was insufficient to study for changes in urinary tract symptoms.²⁸ Similar to our study, the duration of follow up was one month and findings showed no significant relation with stress urinary incontinence. Tayrac et al studied urinary symptoms following vaginal hysterectomy and conservative treatments. The result showed no significant associations of urge or stress incontinence in patients with vaginal hysterectomy. Though duration of follow-up was considered as a modifier, repeat analysis considering less than five year and more than five years also couldn't find any significant association to have urinary symptoms following vaginal hysterectomy.²⁹ In contrast, a shorter duration follow up was done in our study as compared to above study, but the results were similar as this study which showed no significant association with post-operative urinary symptoms. Three years observational study done by Gustafsson et al. on long term effect of hysterectomy on symptoms of urinary incontinence showed no significant detectable symptoms/effect in stress/urge urinary incontinence after 3 years, independent of route of surgery. Similar to present study, stress urinary incontinence didn't show significant relation with vaginal hysterectomy.³⁰

There are few studies, which in contrast show significant association between stress urinary incontinence and hysterectomy. Vaginal route for hysterectomy cause less tissue damage than abdominal approach thus our study didn't find association with stress urinary incontinence. Heydari et al. concluded that there is an increased chance of severe SUI after hysterectomy by measuring Valsalva Leak Point Pressure (VLPP). VLPP was found to be significantly low in patients with hysterectomy and the patients had 6.32 times more chance of suffering with severe SUI after hysterectomy.³¹ Present study didn't use urodynamics and measure leak point pressure, but clinically, stress urinary incontinence was not found significantly related to vaginal hysterectomy post-operatively.

A cohort study of 30 years by Altman et al. indicated that the rate of SUI was significantly higher in patients with history of hysterectomy than in patients without hysterectomy.³² Similarly, Allahdin et al. in their Study with 10-year follow-up showed patients with history of total abdominal hysterectomy had to be referred more for urinary incontinence investigation and treatment.³³

Skorupska KA et al. studied 392 patients undergoing different routes of hysterectomy including vaginal hysterectomy who were followed up 12 months post-operation for urinary



incontinence. Thirty-eight percent (38%) of the patient showed urinary incontinence but incontinence showed no significant relation with route of surgery. Similarly this study analyzed for any stress urinary incontinence after vaginal route of hysterectomy, in which 20% of the patients complained of stress urinary incontinence but didn't show significant relation with surgery.³⁴

A longitudinal cohort study of 661 women with follow-up for 10 years was done by Christiansen et al.³⁵ The patients were pre-operatively questioned regarding urinary incontinence (stress and urge) and operated for hysterectomy, laparoscopic cholecystectomy and transcervical endometrial resection. Ten years postoperatively the queries were repeated in 371 with hysterectomy, 89 with laparoscopic cholecystectomy (LC), and 201 with transcervical endometrial resection (TCRE). The overall prevalence of SUI ten years after surgery was 23% compared to 12% preoperatively. Urge UI was prevalent in 12% compared to 5% preoperatively. Incidence proportions of stress UI were 21% in hysterectomies, 15% in LC, and 18% in TCRE. Similarly, incidence proportions of urge UI were 11% in hysterectomies, 11% in LC, and 8% in TCRE. The conclusion was that the number of urinary incontinence (stress and urge) was found to have increased in 10-year duration but the symptoms were not significantly related to any particular surgical procedure. Thus, hysterectomy or other surgical procedures in the study were not found significantly related to increasing urinary incontinence post-operatively. Our study had similar finding of increased complaints of stress urinary incontinence post-operatively than pre-operatively but showed no significant association with vaginal hysterectomy.

CONCLUSION

Though new onset stress urinary incontinence was found

post operatively but it didn't show significant relation with the surgery. But, advancing age was found to show a statistically significant relation with SUI. Studying a different route of hysterectomy and extending the duration of follow-up after surgery in search of general incontinence might provide a different outcome.

LIMITATION OF THE STUDY

This is the first study of its kind we designed in our institute. So, number of sample, incorporating other routes of hysterectomy and post-operative timing of follow-up should be considered as limiting factors. Abdominal hysterectomy and increasing the followup duration post-surgery might show different result, which would have been an inspiration for the next study that can be done in this institute, which we are sure, would show us more significant and conclusive result.

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CONFLICT OF INTEREST

There are no conflict of interest.

FINANCIAL DISCLOSURE

None

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