Reproductive Risk Factors in Uterovaginal Prolapse: A Case Control Study

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Abstract

Introduction: Uterovaginal prolapse (UVP) is a major women's health concern throughout the world and contributes a major bulk of reproductive health morbidity in Nepal. The cause of this disorder is likely to be multifactorial. The aim of this study was to analyze the reproductive risk factors associated with UVP.

Methods: This was a hospital-based case control study, carried out in the Gynaecology Department of TUTH over one year from 1stBaisakh 2068 to 30thChaitra 2068 (13th April 2011 to 12th April 2012). Cases comprised of 116 women with UVP, second degree or more and controls were women without prolapse of the same age group (± 5 years) admitted subsequently after the cases. The variables studied were; age at first childbirth, number of vaginal births, birth spacing and rest during puerperal period. P value and Odds Ratio (OR) for each risk factor were calculated. Multivariate analysis was done for those risk factors found to be significant from the univariate analysis.

Results: Age at first childbirth, number of vaginal births and rest during puerperium were found to be significant risk factors from univariate analysis. Only two risk factors i.e. age at first childbirth<20years; OR 2.24(95% CI 1.18-4.25) and rest during puerperium<15 days; OR 3.87(95% CI 1.9-7.93), were found to be significant by the multivariate analysis.

Conclusion: Preventing early marriage and childbirth at a young age along with imparting awareness about the importance of adequate rest during the puerperium could go a long way in reducing morbidity due to prolapse.

Key words: reproductive risk factors, uterovaginal prolapse

Introduction

Uterovaginal prolapse (UVP) is a major women's health concern throughout the world. It is estimated that the prevalence of any degree of uterine prolapse is 5% in women aged 20-59yrs.[1] In Nepal UVP contributes a major bulk of reproductive health morbidity. The 2006 Nepal Demographic and Health Survey found that up to 7% of women of reproductive age group (15-49 years) were suffering from uterine prolapse.The IRC (International Rescue Committee) reports one in three rural Nepalese women is affected with uterine prolapse (2009).[2] In TUTH, prolapse is one of the major reasons for admission and surgery in the gynecology department.

The cause of this disorder is likely to be multifactorial; attributable to a combination of risk factors, varying from patient to patient. [3] Vaginal childbirth, young age at first childbirth, frequent childbirths, inadequate rest and nutrition in the intranatal and postnatal period, advancing age, and increasing body-mass index are the most consistent risk factors with vaginal childbirth being the one most frequently associated with prolapse.[4-9]

Because of the taboos and social stigma associated with prolapse women hesitate to seek help and often do so only at an advanced state after living a life of misery for years.

Prolapse not only affects the quality of life of the woman but also adds an economic burden to the family and ultimately to the country. This study is an attempt to understand what may be the cause of so many of the women suffering and whether any of those factors are preventable; a step in addressing a problem of such great magnitude.

Methodology

It was a hospital based case control study carried out in the Department of Gynecology and Obstetrics, Tribhuvan University Teaching Hospital, a tertiary level referral centre, Maharajgunj, Kathmandu over one year from 2068/1/1 to 2068/12/30 (13th April 2011 to 12th April 2012). All the women who were admitted to the gynaecology ward of TUTH with the diagnosis of 2nd and 3rd degree UVP or procidentia for conservative management or surgery were taken as cases for the study. Women of similar age group (within 5 years) as the cases, admitted just after the case for reasons other than prolapse in the female surgical ward were taken as controls. Women with prolapse associated with pregnancy, post hysterectomy vault prolapse, prolapse associated with gynecological malignancies were excluded. Patients were explained in detail about the study being performed. Those giving an informed verbal consent were enrolled. The data analysis was done using SPSS 18 software. To determine the statistically significant risk factors; the chi square test was used for qualitative data and t-test for quantitative data. Odds Ratio (OR) for each risk factor was calculated. P value was taken as significant if <0.05. Multivariate analysis was done for those risk factors which had been found to be significant from the univariate analysis.

Results

During the data collection over a period of 1 year, there were a total of 116 cases admitted with the diagnosis of 2nd and 3rd degree UVP or procidentia and 116 women without UVP, age-matched within 5 years of the cases were taken as controls with case to control ratio of 1:1.Prevalence of uterovaginal prolapse cases of 2nd degree or more among total gynecological admissions was 10.4%.Most of the cases 69(59%) had third degree UVP, 44(38%) had second degree while only 3(3%) cases had procidentia (Table 1).

Table 1 Degrees of Prolapse

Degrees of prolapse	N=116	%
2nd	44	38
3rd	69	59
Procidentia	3	3

Maximum cases 36(31.8%) were in the age group of 51-60 years (Figure1).

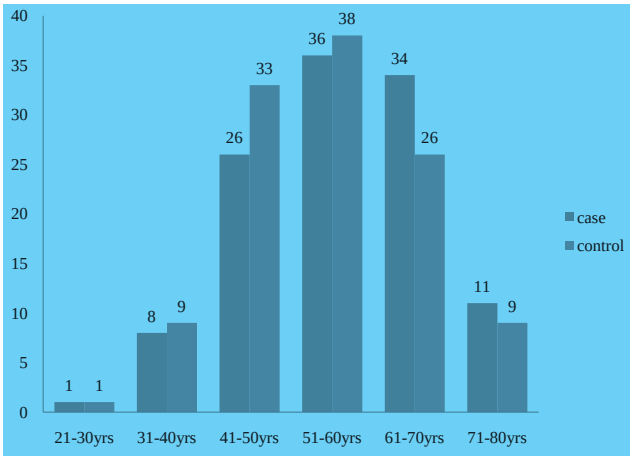

Figure 1 Age distribution of the women

Majority of the women among the cases as well as the controls belonged to the Indo-Aryan race. Housewives were predominant in both groups. The groups were comparable in terms of occupation (p value= 0.393). The two groups significantly differed in their educational status (p value= 0). Among the cases 88(75.8%) were illiterate compared to 51(44%) controls. Women with higher educational status were found more in the control group (Table 2).

The age at the onset of prolapse was 50-59 years in 41(35.3%) cases. Most patients 45 (38.8%) came for treatment within 5 years; one third i.e. 34 (29.5%) came after 11-20 years of having prolapse.

Among the reproductive risk factors; age at first childbirth [OR 2.24(95% CI 1.18-4.25)], number of vaginal births [OR 4.72(95% CI 1.96-11.35)] and rest during puerperium [OR 3.87(95% CI 1.9-7.93)] were found to be significant risk factors for the development of UVP. Birth spacing was not found to be associated with prolapse in this study (Table 3,4). Only two risk factors i.e. age at first childbirth <20years and rest during puerperium<15 days were found to be significant by the multivariate analysis. (Table 5)

Table 2 Socio-demographic characteristics of the women

Profile		Case (%) N=116	Control (%) N=116	p value
Ethnicity	**Indo-Aryan**	91(78.4)	79(68.1)	**0.075**
	Tibeto-Burman	25(21.6)	37(31.9)	
Occupation	**Housewife**	107(92.2)	105(90.5)	**0.393**
	Farmer	7(6)	6(5.17)	
	Laborer	1(0.9)	0	
	Service	1(0.9)	3(2.6)	
	Others	0	2(1.7)	
Education	**Illiterate**	88(75.8)	51(44)	**0.00**
	Literate	20(17.3)	31(26.7)	
	Primary education	4(3.4)	15(13)	
	Secondary education	3(2.6)	17(14.6)	
	Higher secondary	1(0.9)	2(1.7)	

Table 3: Reproductive risk factors

		Minimum	Maximum	Mean	p value
Age at first childbirth (yrs)	**Case**	15	29	19.6	**0.00**
	Control	15	28	21.1	
No. of vaginal births	**Case**	1	16	4.9	**0.00**
	Control	0	12	3.5	
Birth spacing (yrs)	**Case**	1	8.5	2.9	0.21
	Control	1.5	6	3.1	
Rest during puerperium (days)	**Case**	2	120	13.3	**0.00**
	Control	7	180	23.6	

Table 4. Odds Ratio (OR) of Reproductive Risk Factors

Risk factors	Cases(%) N=116	Controls(%) N=116	UnadjustedOR (95%CI)
Age at first childbirth			
<20	61(52.6)	27(23.7)	**3.57(2.03- 6.28)**
≥20	55(47.4)	87(76.3)	1
No. of vaginal births			
3 or more	109(94)	89(76.7)	**4.72(1.96-11.35)**
<3	7(6)	27(23.3)	1
Average birth spacing			
≤2yrs	20(17.4)	11(9.8)	1.93(0.88-4.24)
>2yrs	95(82.6)	101(90.2)	1
Rest during puerperium			
<15days	102(88)	62(54.4)	**6.11(3.13-11.93)**
≥15days	14(12)	52(45.6)	1

Table 5. Multivariate Analysis of Risk Factors

Risk factors	Multivariate OR (95% CI)	P value
Age at first childbirth <20yrs	2.24(1.18-4.25)	**0.014**
No. of vaginal childbirths ≥3	1.45(0.53-4.05)	0.480
Rest during puerperium<15days	3.87(1.9-7.93)	**0.000**

Discussion

The prevalence of uterovaginal prolapse of 2nd degree or more was 10.4% in this study. This is consistent with the 10% prevalence of pelvic organ prolapse found in a cross sectional descriptive study carried out in 8 districts of Nepal and also with the 2006 Nepal Demographic and Health Survey that found up to 7% of women of reproductive age group (15-49 years) were suffering from uterine prolapse.[2,10]The prevalence in this study is double than that in a Swedish study which found a 5% prevalence of any degree of prolapse in women aged 20-59 years.[1]This probably is a reflection of the difference in status of women's health in a developed country as compared to a developing one.

The two groups significantly differed in their educational status (p value= 0). Among cases 75.8% were illiterate compared to 44% of controls. Women with higher educational status were found more in the control group. Similar results were reported in Progetto Menopausa Italia Study Group; in comparison with women with none/ primary education risk of prolapse was reduced for women with intermediate or high-school degree (OR 0.8).[7]This is probably because of better health and living conditions of educated women compared to those who have none or minimal education.

In this study, the mean age at first childbirth was 19.6 years for cases while it was 21 years for controls. The risk of prolapse was higher in women with age <20 years at birth of first child as compared to women who had their first baby at the age of 20 years or more, OR being 3.6 (95% CI 2.031-6.288). Similar to this are the findings in a study by Pandit, et al, in which the mean age at first childbirth was 19.2 years for cases while it was 21.2 years for controls and young age (<22years) at first vaginal birth was single most frequently identified risk factor in their study (OR 3.41).[6] Also similar to this finding was that of a study by Moalli, et al where patients were more likely than controls to be younger than 25 years at birth of their first child (OR 4).[11] Perhaps the definition of young age differs in these studies as a result of the very different populations, one from the developing country where early marriage and childbirth before 20 years is very common as opposed to a later age in the developed world.

It was seen in the present study that in comparison with women having <3 vaginal birth, odds ratio (OR) of prolapse was 4.7 (95% CI 1.9-11.357) for women with vaginal births 3 or greater. This supports the hypothesis that vaginal delivery results in significant pelvic floor tissue stretching and pudendal nerve damage in most women delivering their baby, which in turn may lead to laxity of the pelvic ligaments.[8] Other studies have also reported an increased risk of prolapse with increasing number of vaginal births.[7,9]In the Oxford Family Planning Study, compared with nulliparous individuals, the relative risk of developing prolapse was eight times higher for a woman who had delivered two children and ten times for one with four or more children.[12]

In this study the average birth spacing among cases was 2.9 years and that among controls was 3.1 years which was not statistically significant (p value 0.21). Also comparing women who had more frequent childbirths at intervals of ≤2 years to those who had interval between childbirths >2 years, OR for having uterovaginal prolapse was only 1.9 (95% CI 0.88-4.24). These findings are debatable with findings of other studies like Bonetti, et al, who reported frequent conceiving and inadequate birth spacing in women with prolapse in their study.[5]According to the study by PR Pant, low birth spacing was found to be prevalent in the Bishwokarmas who had the highest prevalence of prolapse in the community.[13] In our study birth spacing was not significant probably due to recall bias as cases that had more number of children had difficulty remembering the exact spacing between each child while the controls could do so more easily.

In this study 88% of cases reported early return to household work (<15days) after childbirth as compared to 54% of controls. The mean days of rest allowed in the puerperium were 13.3 days in cases and 23.6 days in controls. The difference was significant with p value = 0. The 13 days rest is probably due to the practice of having *nwaran* on the 11th postpartum day, till which time the woman is considered to be impure and not allowed to touch water and after which she's allowed back into the kitchen. Comparing women who were made to return to household work earlier (<15 days) to those who were allowed to rest for ≥15 days, the risk of having uterovaginal prolapse was higher in women with inadequate rest during puerperium, OR 6.1 (95% CI 3.13-11.9).Similar findings were seen in the study conducted by Bodner, et al, in Kathmandu valley where 87% of the patients reported doing heavy work during pregnancy and postnatal period.[9] Gurung, et al, showed resumption of work in less than a month in 84% cases in their study. [10]PR Pant in his study found that of the women with prolapse, 95% reported to have returned to heavy work within 10 days of delivery.[13]

Conclusion

From this case control study, it could be concluded that among the variables studied, young age at first childbirth, increasing number of vaginal births, and inadequate rest during puerperium were the significant reproductive

risk factors found to be associated with prolapse. Hence, postponing early childbearing, limiting the number of children, providing adequate care, rest and nutrition to women in the immediate postpartum would all possibly result in decreasing the burden of UVP in our population.

Conflict of interest: None declared.

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