357

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PROGNOSTIC FACTORS FOR PERSISTENCE OR DEVELOPMENT OF STRESS INCONTINENCE AFTER HYSTERECTOMY.

Aims of Study

Hysterectomy has been associated with stress incontinence[1]. Whether hysterectomy is a causal factor for stress incontinence is unknown. Patients who are candidate to undergo hysterectomy more often report bothsome stress incontinence as compared to patients who preserve their uterus [2]. Based on available literature it is difficult to inform patients about the risk on persistence or development of stress incontinence after hysterectomy. We performed a multi-center prospective observational study to identify prognostic factors for the persistence or development of stress incontinence after hysterectomy.

Methods

Consecutive patients undergoing hysterectomy for benign disease in 13 teaching and non-teaching hospitals wrere asked to participate in this study. Patients with symptomatic uterine prolapse were excluded. Participating patients were asked to complete a questionnaire to document the presence and experienced bother of micturition symptoms both before and at three years after hysterectomy. Stress incontinence was considered to be present if the patient experienced urine leakage related to physical activity, coughing or sneezing. Using logistic regression analysis, odds ratio's were calculated for variables predicting the persistence and development of stress incontinence and bothersome stress incontinence. Variables considered were age, body mass index (BMI), menopausal status, presence of co-morbidity, parity, history of abdominal surgery, surgical approach (vaginal or abdominal), removal of the cervix, maximal diameter of the cervix (cm), descensus of the uterus (cm above or below the hymen) and indication for hysterectomy (menorragia, metrorragia, abdominal pain, dysmenorroe or other). The odds ratios of relevant prognostic factors (i.e. $p<0.10$ in the monovariate analysis) were adjusted for differences in other prognostic factors in a multivariable logistic regression analysis.

Results

Of the 388 participating patients, 343 (response rate = 88.4 %) patients returned a completed questionnaire at three years after hysterectomy. Stress incontinence persisted in 119 (75.8 %) of the 157 patients who reported this symptom before hysterectomy. Of the remaining 186 patients, 44 (23.7 %) patients developed stress incontinence and 20 (10.8 %) patients developed bothersome stress incontinence.

	Mono-variate analysis			Multi-variate analysis		
Prognostic variable	OR	(95% CI)	p-value	OR	(95% CI)	p-value
BMI (per kg/m^2)	1.13	(1.07 - 1.20)	< 0.01	1.12	(1.06 - 1.19)	< 0.01
Age (per year)	1.05	(1.01 - 1.09)	0.01			ns
Post-menopausal			ns			ns
Co-morbidity present	2.2	(1.4 – 3.6)	< 0.01	2.2	(1.3 - 3.6)	< 0.01
History of abdominal surgery			ns			ns
Surgical route (vaginal vs abdominal)			ns			ns
Removal of the cervix			ns			ns
Parous	1.9	(1.0 – 3.6)	0.07			ns
Seize of the uterus (per cm)			ns			ns
Descensus of the uterus (per cm)	1.07	(0.99 - 1.15)	0.10			ns
Indication fo hysterectomy*			ns			ns
- menorragia			ns			ns
- metrorragia			ns			ns
- abdominal pain			ns			ns
- dysmenorroe			ns			ns
- other			ns			ns

Table 1. Odds ratios of prognostic factors for the persistence of stress incontinence.

OR = odds ratio, CI = confidence interval, BMI = body mass index, ns = not significant.
Odds ratios of prognostic factors for the persistence of stress incontinence are shown in Table 1. Higher BMI and the presence of co-morbidity were statistically significant prognostic variables for the persistence of stress incontinence after hysterectomy. Odds ratios of prognostic factors for the development of stress incontinence are shown in Table 2.

	Mono-variate analysis			Multi-variate analysis		
Prognostic variable	OR	(95% CI)	p-value	OR	(95% CI)	p-value
BMI (per kg/m^2)			ns			ns
Age (per year)	0.91	(0.86 - 0.97)	< 0.01	0.91	(0.86 - 0.97)	< 0.01
Post-menopausal			ns			ns
Co-morbidity present	0.5	(0.2 - 1.1)	0.08			ns
History of abdominal surgery			ns			ns
Surgical route (vaginal vs abdominal)			ns			ns
Removal of the cervix			ns			ns
Parous			ns			ns
Seize of the uterus (per cm)			ns			ns
Descensus of the uterus (per cm)			ns			ns
Indication fo hysterectomy*			ns			ns
- menorragia			ns			ns
- metrorragia			ns			ns
- abdominal pain			ns			ns
- dysmenorroe			ns			ns
- other	1.1	(1.0 - 1.2)	0.06	1.1	(1.0 - 1.2)	0.04

Table 2. Odds ratios of prognostic factors for the development of stress incontinence.
OR = odds ratio, CI = confidence interval, BMI = body mass index, ns = not significant.

Younger age and an indication for hysterectomy other than menorragia, metrorragia, abdominal pain or dysmenorroe were prognostic variables for the development of stress incontinence after hysterectomy. Mono-variate regression analysis showed that higher age (OR = 0.88/year (95% CI = 0.81-0.96; p<0.01) and larger uteral seize (OR = 0.69/cm (95% CI = 0.69-1.01; p=0.06) are prognostic variables for the development of bothersome stress incontinence. Multi-variate regression analysis only indicated age as prognostic variable for the development of bothersome stress incontinence (data not shown in tables).

Conclusions

In this study, stress incontinence persisted in about 3 out of every 4 patients undergoing hysterectomy. Stress-incontinence appeared to remain especially present in women of high weight and co-morbidty. Stress incontinence developed in about 1 out of every 4 patients undergoing hysterectomy. Younger women undergoing hysterectomy because of uncommon reasons were at increased risk to develop stress incontinence. Bothersome stress incontinence developed in 1 out of every 10 patients, especially among those of younger age. The results of this study will help medical practitioners to better inform their patients about the risk on persistence or development of stress incontinence after hysterectomy.

References

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