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AN EPIDEMIOLOGICAL STUDY TO ASSESS PREVALENCE AND RISK FACTORS FOR PELVIC FLOOR DYSFUNCTION IN PRIMIGRAVIDAE DELIVERED 20 YEARS EARLIER; A SECONDARY ANALYSIS OF SEVERITY BASED ON RESPONSES TO THE SHEFFIELD PELVIC FLOOR ASSESSMENT QUESTIONNAIRE (SHEFFIELD-PAQ)

Hypothesis / aims of study

We have previously undertaken a study to evaluate the impact of obstetric events at first delivery, and the influence of subsequent pregnancies and other variables, on pelvic floor dysfunction 20 years later.(1) We hypothesised that additional information about the type and severity of dysfunction might give greater insight into the relevance of these variables. We therefore undertook a further study of the same cohort of women, using the Sheffield-PAQ.

Study design, materials and methods

Following sample size calculation, 3002 primigravidae delivered between 1983 and 1986 were identified from birth registers and matched to their obstetric data obtained from the 'Standard Maternity Information System' (SMIS). Tracing of women was performed using the NHS Strategic Tracing Service. Women whose current address could not be determined, those known to be deceased, or having suffered stillbirth were excluded. Those living out of region, where ethical approval was not effective, were also not contacted. In the first posting women were sent a letter of invitation and a short screening questionnaire; regardless of their responses they were also invited to complete Sheffield-PAQ *v 3.0* © and SF-12 *v 2* ™ in a second posting.(2) The screening questionnaire contained the introductory 'stem' questions on bladder, bowel and vaginal sections of the Sheffield-PAQ, and our analysis of risk factors was based on the responses to 'any leakage of urine (UI)', 'any prolapse or awareness of a lump in the vagina (Pr) and 'any flatal or faecal incontinence (AI)'. In order to explore more fully the possible relevance of obstetric antecedents, the responses to the full Sheffield-PAQ were used to define subgroups based on type or severity. Symptom and subgroup definitions used for the various aspects of pelvic floor dysfunction were as follows: **UI was defined as:** any leakage of urine (question U2) **or** at least 1 symptom on the SUI or OAB domain **plus** frequency of leakage of at least '1/week' and volume of leakage at least 'small' (U 19a & 19b)

Subgroups of UI were:

We developed an index of symptom severity by adding responses to U19a (frequency of urinary leakage) and U19b (volume of leakage). A score of 1-2 was designated as mild UI, 3-5 as moderate, and 6-7 as severe.

AI was defined as: any positive response to the following questions: faecal incontinence (B2), urge faecal incontinence (B19a), incontinence of liquid stool (B21a), incontinence of solid stool (B22a), flatal incontinence most of the time/all of time (B20a), insensible loss of faeces (B24a).

Subgroups of AI were:

1. Flatal incontinence - leakage of wind (flatus) (B20) **and** no faecal incontinence
2. Faecal incontinence (FI) - leakage of any stool (B2), urge faecal incontinence (19a), leakage of liquid stool or solid stool (B21a-22a), or insensible loss of faeces (B24a).

Prolapse was defined as: reporting of a bulge that comes down or out of the vagina (V2, V12a, or V13a).

Subgroups were:

1. Mild prolapse - a positive response to V2 or V12a **and not** to V13a
2. Severe prolapse - a positive response to V13a

Results

3002 women were circulated; 1861 (62%) returned screening questionnaires; 1119 (37% of total, 60% of initial responders) agreed to complete the Sheffield-PAQ, of whom 895 (80%) actually did so. Mean current age 46.1years (sd3.5). Median BMI 24.8kg/m^2 (range 14.6-49.5kg/m^2). Median time since first delivery 19.2 years (17.7-21.3 years). There were no clinically significant differences between responders and non-responders to the Sheffield-PAQ and no differences between obstetric parameters on the SMIS. Significantly more responders were from social classes 1 & 2 and fewer were from an unclassified social class ($p<0.0001$). 455 (51%) reported UI as defined above, of whom 338 (38%) were graded as mild UI and 117 (13%) as severe. 130 (15%) women reported prolapse as defined above, of whom 40 (4.5%) were severe. 205 (23%) of women reported faecal incontinence, as defined above; 708 (79%) reported some incontinence of flatus, but using the above definition, 48 (5.4%) women reported flatal incontinence most/all time. Thirteen variables were entered into a logistic regression model; those found to be significant are shown in the table.

			Leak flatus			Leak faeces		
Risk factor	*N*	*n*	adj. OR	95% CI	*n*	adj.OR	95% CI	*p*
Mode of delivery								0.004
Spontaneous	432	18	1		94	1		
Instrumental	324	22	2.76	1.18, 6.46	93	1.72	1.10, 2.71	
C section	130	8	0.76	0.13, 4.36	18	0.32	0.13, 0.77	

			Mild UI			Moderate/severe UI		
	N	*n*	adj. OR	95% CI	*n*	adj.OR	95% CI	*p*
BMI								<0.0001
<25.0	250	168	1		45	1		
25.0-30.0	119	124	1.59	1.14, 2.22	42	1.82	1.11, 2.96	
>30.0	48	46	1.7	1.06, 2.72	30	3.61	2.00, 6.50	

			Mild prolapse			Severe prolapse		
	N	*n*	adj. OR	95% CI	*n*	adj.OR	95% CI	*p*
Birth weight								0.004
<3.0 kg	186	15	0.54	0.25, 1.18	16	2.94	1.17, 7.40	
3.0-3.5 kg	344	36	1		10	1		
>3.5 kg	225	39	1.71	1.04, 2.82	14	2.29	0.98, 5.37	

	N	*n*	adj. OR	95% CI	*n*	adj.OR	95% CI	*p*
Mode of delivery								0.07
Spontaneous	359	50	1		23	1		
Instrumental	276	35	0.88	0.49, 1.56	13	0.82	0.34, 2.01	
C section	121	5	0.23	0.08, 0.66	4	0.42	0.10, 1.82	

Interpretation of results

Similar variables are shown to be significant in this analysis to those previously identified from our screening questionnaire. Despite the use of a more detailed tool, and the ability to categorise symptoms on the basis of severity or type, the reduced response rate limits the value of this additional detail.

Concluding message

Increasing BMI is associated with increased severity of UI; caesarean section appears to be protective against FI and instrumental delivery contributory to AI. There is always a balance to be made between the size and detail of questionnaires and the response rate that can be anticipated.

References

1. Reference removed to maintain anonymity – available on request.
2. Brit J Obstet Gynecol 2006;113:231-238.

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HUMAN SUBJECTS: This study was approved by the Newcastle & North Tyneside LREC and followed the Declaration of Helsinki Informed consent was obtained from the patients.