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Dean N[1], Martin L[1], Herbison P[2], Wilson D[1], Glazener C[3], MacArthur C[4], Hagen S[5], Grant A[3], Toozs-Hobson P[6], Bain C[7]

1. Women's and Children's Health, Dunedin School of Medicine, Otago University, 2. Preventive and Social Medicine, Dunedin School of Medicine, Otago University, 3. Health Services Research Unit, University of Aberdeen, 4. Epidemiology and Public Health, University of Birmingham, 5. NMAHP Research Unit, Glasgow Caledonian University, 6. Obstetrics and Gynaecology, Women's Hospital, Birmingham, 7. Obstetrics and Gynaecology, Aberdeen Royal Infirmary, Aberdeen

ASSESSMENT OF PELVIC FLOOR DYSFUNCTION IN NULLIPAROUS WOMEN: A COMPARATIVE STUDY

Hypothesis / aims of study

There is very little published data on the prevalence of pelvic organ prolapse (POP) in the general population, especially among nulliparous and asymptomatic women. The role of pregnancy and mode of delivery relating to subsequent prolapse, and its prevention, is still unclear. The aim of this study was to compare pelvic organ support in a 'control group' of nulliparous women with sub-groups of parous women, with different modes of deliveries, from an on-going longitudinal study.

Study design, materials and methods

Nulliparous women, aged 30-50 years old, were recruited after advertising over a period of 3 months (Nov 2005 to Jan 2006), to act as a 'control' to a group of parous women who first gave birth at least 12 years previously. They were from one of the centres in an on-going multicentre study assessing the relationship of pelvic floor dysfunction with mode of delivery. All consenting nulliparous women completed a questionnaire, similar to that used in the longitudinal study, enquiring about demographics, symptoms of incontinence and pelvic organ prolapse. Also, all women were clinically assessed using the Pelvic Organ Prolapse Quantification (POP-Q) staging system (1). All the examinations were performed by the same investigator.

For analysis purposes, the parous women were categorised into four groups depending on their mode of delivery: caesarean section (CS) deliveries only, a combination of vaginal deliveries and caesarean sections (SVD & CS), spontaneous vaginal delivery (SVD) only and any assisted vaginal delivery (AVD) which included forceps, vaginal breech and ventouse deliveries. The differences between the nulliparous controls and the sub-grouped cases were evaluated using a Chi squared test, and ordinal logistic regression was used to adjust for confounders.

Results

A total of 30 nulliparous women were recruited and all completed a questionnaire and attended for the POP-Q examination. Questionnaire and examination data on 166 parous women were available. The mean age was younger in the nulliparous group (38 years old, standard deviation [SD] 6) when compared to the parous women (40 years old, SD 5).

Table 1 shows the distribution of the POP-Q grades across the different control and parous groups. The POP-Q stages were statistically significantly higher among the SVD &CS, SVD and AVD delivery groups compared to the nulliparous group ($p = 0.001$, <0.0001 and <0.0001, respectively). Even when adjusted for age, parity, BMI and smoking, the significance remained. Although a POP-Q stage of 2 or greater was more likely in the CS only group compared to the nulliparous group, this was not statistically significant ($p = 0.11$). Advancing age and increasing parity independently had statistically significant effects on increasing POP-Q grade. However, there was no relationship between BMI or smoking with the grade of POP-Q in any of the groups.

Over half (57%) of the nulliparous women had stage 1 prolapse or greater and the anterior compartment alone was the commonest of the three compartments (anterior, apical and posterior) causing the worst POP-Q stage, as 47% were due to descent of the anterior compartment alone and 24% due to a combination of anterior and posterior compartments.

Table 1. Distribution of POP-Q stages for nulliparous and parous groups.

POP-Q Stage	Nulliparous (n = 30)	CS only (n = 14)	SVD &CS (n = 15)	SVD (n = 84)	AVD (n = 51)
0	43%	14%	7%		
1	50%	64%	40%	37%	23%
2a (above the hymen)	7%	22%	40%	40%	45%
2b (at or below the hymen)			13%	23%	26%
3					6%

Interpretation of results

All women in the nulliparous group had POP-Q stages between 0 and 2, with 50% having stage 1 support most commonly caused by descent of the anterior compartment. These findings are in agreement with other studies [2].

The results have shown a statistically significant increase in the POP-Q stages for all modes of delivery involving a vaginal route (SVD &CS, SVD only and any AVD) when compared to nulliparous women. There was no statistically significant difference when nulliparous women were compared with the CS only group, but this could be due to the small number of women in this group. Parity, increasing age and delivery mode were all independent contributing factors to POP-Q stage. No association between POP-Q stage and smoking or BMI was shown in this study.

Concluding message

Although it might seem that CS is protective against POP, pregnancy itself appears to have an effect on pelvic organ support as, even in women who only had CS deliveries, the parous women had a higher overall prolapse stage. Even in asymptomatic nulliparous women a small amount of pelvic organ descent, especially of the anterior vaginal wall, is very common and should be considered normal. Further studies using the POP-Q system as the objective assessment tool in a larger population will provide a greater understanding of the 'normal' distribution of pelvic organ support in the general population and further insight into the aetiology of POP.

References

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FUNDING: Obstetrics and Gynaecology Postgraduate and Summer Scholarships, Dunedin School of Medicine, Otago University
DISCLOSURES: NONE
HUMAN SUBJECTS: This study was approved by the Lower South Regional Ethics Committees and followed the Declaration of Helsinki Informed consent was obtained from the patients.