

DO ASIAN WOMEN HAVE SUPERIOR PELVIC FASCIA?

Aims of Study

Epidemiological studies have postulated racial differences in the incidence and prevalence of female pelvic organ prolapse and stress urinary incontinence (1,2,3). There is anecdotal data from cadaver dissections supporting the hypothesis that Asian women benefit from stronger pelvic support structures, demonstrating a decreased prevalence of pelvic organ prolapse (4).

Recently, translabial ultrasound has been used to evaluate differences in bladder neck mobility between Afro-American and Caucasian women, with the result that the former seemed to show greater laxity of anterior vaginal wall support structures (5). In order to test for differences in pelvic organ support, we followed 200 primigravid women from a multi-ethnic background through their first ongoing pregnancy.

Methods

200 primigravid women were recruited in the antenatal clinic of a large tertiary hospital. They were seen antenatally at 6-18 weeks' gestation; 169 women returned for a follow-up visit at 2-5 months postpartum. Appointments consisted of an interview, paper towel test, flowmetry and translabial ultrasound. The methodology used for ultrasound assessment has been described previously (6).

The interview included a question regarding the ethnicity of all four grandparents. For the purposes of this study, patients were stratified into women of Caucasian and Asian ethnic background. Ethics Committee approval for this study had been obtained from the institutional ethics committee. T- test statistics were performed, with a $p < 0.05$ taken as indicating statistical significance.

Results

Antepartum (6-18 weeks' gestation) as well as postpartum (2-5 months pp) analyses showed significantly less pelvic organ mobility in Asian women. This was true for most parameters of pelvic organ mobility and both the anterior ($p=0.002$ antepartum and $p=0.009$ postpartum) and posterior compartments ($p=0.04$ antepartum and $p=0.02$ postpartum). No significant differences were detected for mobility of the cervix. Tables 1 and 2 show antepartum and postpartum measurements for the tested parameters.

Parameter	Urethral rotation	Bladder neck descent	Cystocele descent	Cervical descent	Rectal descent
	deg	mm	mm	mm	mm
Asian (n=16)	25 StD 16.7	13.2 StD 6.7	17.5 StD 9.5	43.9 StD 12	20.9 StD 13.9
Caucasian (n= 161)	39.5 StD 25.3	19.7 StD 10.6	11.7 StD 11.4	39.2 StD 18.1	12 StD 18.5
p=	0.005	0.002	0.035	0.17	0.04

Table 1: Antepartum (6-18 weeks' gestation) translabial ultrasound findings in Asian and Caucasian women. All trends and significances indicate comparatively less pelvic organ mobility in Asian women. All parameters are measured against the inferoposterior margin of symphysis pubis. The last three categories signify the lowest position reached by bladder, cervix and rectal ampulla on Valsalva manoeuvre.

In order to test for potential confounders, delivery- related factors such as length of second stage, delivery mode and birthweight were analyzed against ethnicity, with none of those factors reaching significance ($p=0.6$ for likelihood of normal vaginal delivery, $p=1$ for incidence of Caesarean Section, $p=0.2$ for difference in length of second stage, $p=0.1$ for difference in birthweight (mean of 3311 g in Asian women as compared to a mean of 3482 g in Caucasian women)).

Levator strength as determined by cranioventral displacement of the bladder neck did not vary between ethnic groups, neither before nor after childbirth.

Parameter	Urethral rotation	Bladder Neck Cystocele descent	Cervical descent	Rectal descent
	deg	Mm	mm	mm
Asian (n=11)	30 StD 20.5	19.5 StD 9.5	9.3 StD 11.1	22.6 StD 16.7
Caucasian (n= 138)	62.4 StD 34.2	28.8 StD 10.7	-0.4 StD 12.5	21.1 StD 16
p=	<0.001	0.009	0.018	0.7

Table 2: Ultrasound findings 2-5 months postpartum in Asian and Caucasian women. All significances indicate less pelvic organ mobility in Asian women (lower numbers for the first two categories, higher numbers for the last three).

Conclusions

This study supports the hypothesis that there are significant differences in pelvic organ support between Caucasian and Asian women, with the latter showing less mobility of both the anterior and the posterior vaginal compartment. These differences remain evident after childbirth.

Literature

- 1 *Obstet. Gynecol.* 81(3):421-425, 1993.
- 2 *American Journal of Obstetrics & Gynecology* 174(2):646-648, 1996.
- 3 *J. Reprod. Med.* 44(6):529-534, 1999.
- 4 *Aust. N.Z. J. Obstet. Gynaecol.* 17:1-11, 1977.
- 5 *Obstet. Gynecol.* 2000. May; 95(5):713-7. 95(5):713-717, 2000.
- 6 *Ultrasound Obstet Gynecol* 18 (2001); 511- 514