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URINARY INCONTINENCE DURING PREGNANCY PREDICTS POSTPARTUM UI MORE EFFECTIVELY THAN TYPE OF DELIVERY (CESAREAN VS. VAGINAL)

Aims of Study

Despite recent focus on Cesarean as protective of the pelvic floor, conflicting research asserts that genetic endowment and pregnancy are more important risk factors in postpartum UI (1,2). Our study assessed the relative capacity of antenatal UI and delivery type (Cesarean vs. vaginal) to predict postpartum UI.

Methods

An initial sample of 130 (98 at delivery) primigravidas with negative history of pre-pregnancy UI and no demonstrable UI at 20 weeks gestation were followed to 12 months postpartum. At each data point response to questions were used to construct the Leakage Index (LI)(3). The LI has demonstrated internal consistency (Chronbach's alpha .72 to .84) and quantifies UI severity from 0 (no leakage) to 8 (positive report on all items). Delivery type was ascertained by medical record review. Pearson correlations were calculated for LI 35-week and LI at each postpartum data point. Finally, stepwise regression, entering LI 35-week first and then Delivery Type was conducted to identify the best predictive model at each postpartum point.

Results

Overall LI scores were in the lower range, regardless of delivery type (Table 1). Women who delivered vaginally had higher LIs compared to those who delivered by Cesarean section.

Table 1. Leakage Index Scores Over Time and By Delivery Type

20 week gestation		35 week gestation			6 week postpartum		6 month postpartum		12 month postpartum	
n	Mean (sd)	n	Mean (sd)	Delivery Type	n	Mean (sd)	n	Mean (sd)	n	Mean (sd)
130	1.5 (1.9)	98	2.3 (2.1)	C-section	25	.07 (1.0)	25	0.6 (1.3)	20	0.6 (1.3)
				Vaginal	71	1.8 (2.4)	65	1.9 (1.8)	62	1.7 (2.0)
						p=.022*		p=.002*		p=.023*

*Two sample t-test

Correlations of LI with postpartum outcomes (Table 2) demonstrated both LI 35-week and delivery type to be significant predictors of postpartum LI when considered in isolation.

Table 2. Correlation of 35 Week Leakage Index with Postpartum Outcomes						
		Leakage Index 35 weeks PERL1+	Leakage Index 6 weeks ppPERL1+	Leakage Index 6 months pp PERL1+	Leakage Index 12 months pp PERL1+	Method of Delivery
Leakage Index 35 weeks PERL1+	Pearson Correlation	1	.317**	.447**	.567**	-.240*
	Sig. (2-tailed)		.002	.000	.000	.019
	N	98	89	84	74	95
Leakage Index 6 weeks pp PERL 1+	Pearson Correlation	.317**	1	.604**	.538**	-.234*
	Sig. (2-tailed)	.002		.000	.000	.022
	N	89	98	85	75	96
Leakage Index 6 months pp PERL1+	Pearson Correlation	.447**	.604**	1	.725**	-.327**
	Sig. (2-tailed)	.000	.000		.000	.002
	N	84	85	92	78	90
Leakage Index 12 months pp PERL1+	Pearson Correlation	.567**	.538**	.725**	1	-.252*
	Sig. (2-tailed)	.000	.000	.000		.023
	N	74	75	78	83	82
Method of Delivery	Pearson Correlation	-.240*	-.234**	-.327**	-.252*	1
	Sig. (2-tailed)	.019	.022	.002	.023	
	N	95	96	90	82	113

**Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

However, results of stepwise multiple regression indicated that the most predictive model of LI at each postpartum point was LI 35-weeks (Table 3). That is, elimination of delivery type from the equation improved the fit.

Table 3. Stepwise Regression Results for Postpartum Leakage
Predicted Leakage 6 weeks postpartum=.661 + .341 (LI 35-weeks) $p<.05$ $R^2=.10$ (n=89) Delivery type eliminated from the equation t=-1.7, p=.097
Predicted Leakage 6 months postpartum=.642 + .377 (LI 35-weeks) $p<.05$ $R^2=.20$ (n=84) Delivery type eliminated from the equation t=-2.0 p=.055
Predicted Leakage 12 months postpartum=.267 + .514 (LI 35-weeks) $p<.05$ $R^2=.32$ (n=74) Delivery type eliminated from the equation t=-0.92, p=.363

Conclusions

These findings add to the evidence base that antenatal UI severity, not vaginal birth, is the primary predictor of postpartum UI. Hereditary factors and pregnancy pelvic floor stress clearly signal women's risk of childbearing related UI prior to labor and delivery. The consistent pattern of 35-week gestation UI severity as a significant predictor of UI severity at all postpartum data points and the failure of delivery type to enhance the predictive capacity of the model underscores the robustness of this relationship. In light of these findings it is recommended that current attention to Cesarean on demand be shifted to more vigorous provider advocacy of behavioral strategies that have demonstrated a preventive effect for postpartum UI(4).

References

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