

ETIOLOGY OF NOCTURIA DURING PREGNANCY DETERMINED BY VOIDING DIARY ANALYSIS

Hypothesis / aims of study

Nocturia is well known to occur commonly during pregnancy but little is known of its etiology [1-3]. We herein report for the first time the utility of diary-based analysis of an unselected cohort of women in order to determine the pathogenesis of nocturia during the 2nd and 3rd trimesters.

Study design, materials and methods

32 unselected women in the 2nd and 3rd trimesters of pregnancy were asked to complete a single 24 hour frequency-volume chart as well as a previously validated Overactive Bladder Symptom Score (OABSS) questionnaire. Diary parameters calculated included 24 hour voided volume (24 hr vol), actual # nightly voids (ANV), nocturnal urine volume (NUV), Maximum voided volume (MVV), Nocturia index (Ni=NUV/MVV), Nocturnal polyuria index (NPI=NUV/24 hr vol), predicted # nightly voids (PNV=Ni-1), Nocturnal bladder capacity index (NBCi=ANV-PNV; higher NBCi means nocturnal voiding at less than bladder capacity). OABSS questionnaire parameters tallied were #nocturia and whether or not patients reported urgency. Patients were grouped by those having nocturia x0-1 (minimal) and those with nocturia >1 (severe). Institutional review board approval was given prior to study initiation; informed consent was obtained for each patient entered into the database.

Results

16 women had minimal nocturia (average x0.5) and 16 had severe nocturia (average 2.88, p=.00001). Patients with severe nocturia had significantly greater nocturnal urine output (NUV), nocturia indices (Ni), nocturnal bladder capacity indices (NBCi) and nocturnal polyuria indices (NPI) than those with minimal nocturia. There were no differences between 24 hour volumes, nocturia or degree of urgency as reported on questionnaires (see Table).

Interpretation of results

Nocturia in pregnancy is multifactorial and related to (a) nocturnal polyuria (see NUV, NPI differences); (b) mismatch in nocturnal urine output and bladder capacity (see Ni differences); (c) low nocturnal bladder capacity (see NBCi differences).

Concluding message

Since severity of nocturia was inaccurately estimated by recollection during completion of questionnaires, we recommend analysis of 24 hour voiding diaries as a diagnostic step central to the evaluation of nocturia during pregnancy.

Table:

Nocturia parameters in pregnant subjects

Nocturia severity	N	24 hr vol	NUV	ANV	Ni	NPI	NBCi	# Noct OABSS	Urgency OABSS
Mild (0-1)	16	1505	210	0.5	.83	.15	.44	1.2	2.25
Severe (>1)	16	2019	714	2.88	2.09	.33	1.44	2	2.86
p-value		.25	.002	.00001	.004	.00018	.0034	.13	.23

References

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<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	SUNY Downstate Institutional Review Board
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes