

DOES URODYNAMIC DIAGNOSIS VARY ACCORDING TO ETHNICITY?

Hypothesis / aims of study

Different proportions of patients have the urodynamic diagnoses of urodynamic stress incontinence and detrusor overactivity depending on whether they are Black or Caucasian (1). It has also been shown that more women of south asian origin have detrusor overactivity than caucasians (2). However there have been no studies of other ethnic groups nor has it been any examination about the differing proportions of systolic and provoked detrusor overactivity. The response of irritative symptoms to anticholinergic treatment appears to be dependent on the type of detrusor overactivity found on urodynamics (3).

This study attempts to determine whether there is any difference in proportion of women diagnosed with systolic and provoked detrusor overactivity and other urodynamic diagnoses according to different ethnic groups. This would be important in interpreting studies of anticholinergic medication, as the responses of patients could depend on the ethnic mix of the patient group studied.

Study design, materials and methods

This retrospective single centre study involved women with urinary symptoms recruited from a urogynaecology clinic. The urodynamic test used a standardised technique, all the women attended with a full bladder and initially voided on a flowmeter. The women were then catheterised with a 12F filling catheter and 4F fluid filled lines inserted into the rectum and bladder. Urodynamics was then performed filling the bladder at 100 mls/min with room temperature radio-opaque contrast or saline. During filling coughing was performed every minute. After filling was finished the 12F filling catheter was removed, the woman was then provoked by listening to running water for 2 minutes and washing her hands in water. The woman was then asked to cough nine times. The woman was then asked to void on the flowmeter for a pressure flow study and assessment of the post-micturition residual.

The patients were subdivided according to their ethnic group. The groups were: Caucasian, Black, south asian, Middle Eastern, east asian and mixed.

The women's urodynamic diagnosis was classified as: normal urodynamic studies where no abnormality was found (NUDS), systolic detrusor overactivity (SDO), provoked DO (PDO), systolic and provoked DO, low compliance, urodynamic stress incontinence (USI), and urodynamic mixed incontinence. The urodynamic mixed incontinence group was further sub-divided into USI with provoked DO, USI with systolic DO, and USI with both provoked and systolic DO.

These diagnoses were then correlated with the patients' ethnic group.

Results

834 women were analysed. Of these 834 women, 592 were Caucasian, 97 were afrocarribean, 59 were south asian, 71 were Middle Eastern, and 15 were east asian.

Table 1: Urodynamic Diagnosis According to Ethnic Group

Race	NUDS	Systolic Detrusor overactivity	Provoked Detrusor Overactivity	Systolic and Provoked Detrusor Overactivity	Low Compliance	USI	Mixed (USI and DO)
Caucasian (n=592)	140 (23.6%)	39 (6.6%)	89 (15.0%)	37 (6.3%)	13 (2.2%)	178 (30.1%)	96 (16.2%)
Black (n=97)	20 (20.6%)	3 (3.0%)	40 (41.2%)	7 (7.2%)	7 (7.2%)	15 (15.4%)	5 (5.2%)
South Asian (n=59)	8 (13.6%)	5 (8.5%)	13 (22.0%)	1 (1.7%)	0	20 (33.9%)	12 (20.3%)
Middle Eastern (n=71)	12 (16.9%)	5 (7.0%)	22 (31.0%)	7 (9.9%)	1 (1.4%)	9 (12.7%)	15 (21.1%)
East Asian (n=15)	3 (20%)	0	3 (20%)	0	0	6 (40%)	3 (20%)
Total	183	52	167	52	21	228	131

There was a difference in distribution of urodynamic diagnoses between racial groups. 28% of Caucasian women had a diagnosis of pure DO, of these 39/165 (24%) had systolic DO and 89/165 (54%) had provoked DO and 37/165 (22%) had both systolic and provoked DO. In the Black women 52% had pure DO with 3/50 (6%) being systolic DO, 40/50 (80%) being provoked DO and 7/50 (14%) being both systolic DO and provoked DO. In Middle Eastern women, a diagnosis of pure DO was found in 34/59 (58%). Of these, 5/34 (15%) were systolic DO, 22/34 (65%) were provoked DO and 7/34 (21%) were both provoked and systolic DO. There is a statistically significant difference between the groups ($p < 0.001$ chi-squared).

Interpretation of results

There is a significant difference in distribution of urodynamic diagnoses between the ethnic groups. USI and NUDS are the largest urodynamic diagnostic groups amongst Caucasian women whereas the diagnosis of DO is more common amongst Black and Middle Eastern women. Furthermore, when considering DO the majority of Black and Middle Eastern women have provoked DO. In Caucasian women there are comparable numbers of women with a diagnosis of mixed incontinence and pure DO whereas in Black and Middle Eastern women there are smaller proportions with a mixed urodynamic diagnosis.

Concluding message

There are statistically significant differences in urodynamic diagnoses between ethnic groups. A high proportion of Black and Middle Eastern women who have pure DO, will have provoked DO. This may mean that these groups are more likely to be resistant to anticholinergic medication and this may have implications for assessing outcome data from anticholinergic trials based on ethnicity.

References

1. Obstet Gynecol. 1993 Mar;81(3):421-5.
2. J Urol. 2005 Jul;174(1):184-6.
3. Neurourol Urodyn 2006.

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HUMAN SUBJECTS: This study did not need ethical approval because The was a retrospective review of a database of patients that had urodynamic investigations as part of their normal clinical care. but followed the Declaration of Helsinki Informed consent was not obtained from the patients.