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Title:
Response to ‘Nocturia is often the tip of the iceberg’

Date:
2022-04-01

Citation:
Bower, W. F. (2022). Response to ‘Nocturia is often the tip of the iceberg’. BJOG an International Journal of Obstetrics and Gynaecology, 129 (5), pp.832-. https://doi.org/10.1111/1471-0528.16910.

Article type : BJOG Exchange

Dear Editor

In response to the comments of Gazdovich and colleagues we make the following observations:

The take home message from this study is that nocturia in women has a mixed pathophysiology and cannot be considered solely a feature of the overactive bladder nor as only resulting from high fluid intake or diuresis rate at night. Factors unique to women, such as pelvic organ prolapse and hormone- mediated thermoregulation, may play into the causal pathway.

Bother attributable to nocturia is mediated predominantly through the impact on sleep quality, where a greater number of nocturia episodes is associated with a higher prevalence of poor sleep[1]. More voids per night is also significantly associated with greater impact on both physical and mental health components of quality of life scores[2]. The following aspects of sleep have been reported significantly more often by individuals who void twice or more each night comparted to those who do not: restless sleep, FUST < 3 hours, difficulty falling back to sleep after voiding, insufficient overall sleep, low energy or fatigue during the day and worry that nocturia will get worse[3,4]. This severity of nocturia at least twice at night has also been demonstrated to be significantly associated with more adverse health outcomes than less frequent night voiding. For all these reasons we believe it is clinically relevant to consider 2 or more voids per night as a point at which to dichotomise nocturia frequency. The term "disruptive nocturia" was defined in our methodology and used as short-hand for "nocturia of twice a night or more" in order to optimise readability of the text.

We concur with the use of validated metrics to collect data and used two such measures in this study (the 3 day bladder diary and the TANGO causality tool). The hormone –status questionnaire was study specific and included a nocturia frequency item. For statistical integrity the diary-recorded

nocturia was used when describing actual measures. The 'subjective" response to nocturia frequency recorded on the questionnaire may reflect a broader more life-like represent5ation of nocturia severity over the long term. In order to accommodate this option both values were extracted and used in descriptive statistics.

Key symptoms of the overactive bladder were noted in approximately 2/3 of the women from TANGO responses; the prevalence has been described in Table 2. We believe the presentation of NBCi data captures the women with a likely OAB diagnosis. We note that this suggests 26.2% of women had likely OAB as comparted to 64.6% who demonstrated nocturnal polyuria. One of the main messages of this paper was to encourage clinicians to not only question women with respect to OAB symptoms but also to ensure an estimate of nocturnal urine volume has been made. The prevalence of diabetes mellitus was low, 11.6%, and as such was not specifically described in the manuscript.

Pelvic organ prolapse can be associated with nocturia through incomplete bladder emptying. We agree that it would be ideal to have clinicians assess and measure any urogenital prolapse using validated measures. To minimise clinic burden this study was conducted directly with women and did not involve input from clinic staff. In order to test observations future work will include objective measures of hormone status and vitamin D, physical parameters alongside a minimum data set.

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