

Prevalence of urinary incontinence in Indian multigravida

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Abstract: *Background:* Urinary incontinence is a problem that creates both physical and psychological nuisance to a woman. This problem needs to be studied in detail in Indian population because of lack of precise data. The present study looked at the types of complications of these practices which present to a large metropolitan women's hospital in order to determine how we can appropriately treat and support affected women. The objective is to find out the prevalence of urinary incontinence in multigravida females. *Methods:* A cross-sectional study was undertaken interviewing 100 multigravidas who attended Gynaecology and obstetrics department of Hakeem Abdul Hameed Centenary Hospital, New Delhi. All the multigravida were screened and those who fulfilled the inclusion criteria were taken as subject in the study. *Result:* The Mean stress score of all the patients was 12.13 ± 6.5 with a minimum stress score of 1 and maximum of 26. Similarly, the mean urge score of all the patients was 8.33 ± 6.23 . The minimum urge score was 0 whereas maximum urge score was 26. *Discussion:* Results showed that the prevalence of stress incontinence was highest (49%) in the selected sample (N=100). The stress incontinence was highest in age group of 41-45 years whereas the incidence of urge incontinence was highest in 31 to 35 years as well as 36-40 years. *Conclusion:* The findings will help increase the awareness of health care workers involved in the care of multigravida women about urinary incontinence and aid the design of more intensive education programmes. Knowing about prevalence and risk factors of urinary incontinence is very important, so that necessary steps in its prevention, its awareness and treatment can be taken.

Keywords: Urinary Incontinence, Multigravida, Stress Urinary Incontinence.

Introduction

Urinary stress incontinence is the complaint of involuntary leakage of urine on effort or exertion, such as sneezing or coughing [1]. Urinary incontinence (UI) is a common problem in women and has been associated with significant physical morbidity, loss of independence, decreased quality of life and decreased participation in social and domestic activities. It is a distressing condition that affects at least 14% of women aged 30 years or older, and is defined by the International Continence Society (ICS) as the complaint of any involuntary leakage of urine [2].

It can result from a variety of different conditions and it is useful to classify them accordingly. The most common types of urinary incontinence in women are stress and urge incontinence. When urodynamic studies demonstrate the involuntary

loss of urine during increased intra-abdominal pressure not caused by a contraction of the detrusor muscle, this is defined as urodynamic stress incontinence. The involuntary leakage of urine, accompanied by or immediately preceded by a strong desire to pass urine (void), is described as urge incontinence. Urgency, with or without urge urinary incontinence and usually with frequency and nocturia, is also defined as overactive bladder syndrome (OAB) [3].

Mixed urinary incontinence is when women have symptoms of both types of incontinence. Usually, one of these is predominant; that is, either the symptoms of urge incontinence, or those of stress incontinence, are most bothersome. A substantial proportion of patients with urinary incontinence are postmenopausal. Evidently, a hypo-oestrogenic state in a woman is associated

with thinning of the urethral mucosa, reduction in urethral closure pressure from loss of sphincter tone, and alteration of the urethro-vesical angle [4-5]. Estimates of the prevalence of urinary incontinence in women vary between 10% and 40% of the female population [6]. Brummen et al. (2007) showed that the antenatal development of stress incontinence lead to an 18-times higher risk of developing stress incontinence during the year following child birth, and that this was most prevalent in the group that delivered vaginally [7].

However prevalence of different types of urinary incontinence is not very well known. Based on these lines of evidences it is essential to study the prevalence of female UI in different populations for quantification of the problem within that given population, as well as projections of healthcare needs. Therefore the present study was designed to determine the prevalence of urinary incontinence in multigravida females.

Material and Methods

This single-centre cross-sectional study was conducted and a total 100 out of 520 multigravida females of age between 25-55 years, presenting in the OPD of Hakeem Abdul Hameed Centenary Hospital, New Delhi were recruited for the study. The subject were screened for urinary incontinence by a doctor based on history and then included in the study using convenience sampling method. The purpose of the study was explained, and informed consent was obtained from all respondents. The entry question was whether or not the participant experienced involuntary loss of urine. Subsequently, a pre-designed questionnaire was administered by the researcher to know the clinical and demographic profile:

- (i) Socio-demographic profile
- (ii) Incontinence, its types and severity,
- (iii) Obstetric history
- (iv) Type of labour/ complication [8].

Questionnaire consisted of 15 questions. The answer to each questions were assigned a certain no. of points, and depending on which answer was given, included in the stress-score (s-s) or the urge-score (u-s). The total s-s and u-s points were added up separately, and the diagnosis was made based on the zones into which each of the scores

fell. Zones a, b, and c were designated as stress incontinence zones, zones g, i, and j as urge incontinence zones, zones e, f, and h as mixed incontinence zones, and zone d as an unclassified incontinence zone (Figure-1). Questionnaire was filled by the therapist. Filled questionnaire were assessed and the result deducted from it. The subjects were made to sign the consent form based on the ethical clearance of the hospital and Hamdard University.

The urinary symptoms for which they were questioned were frequency of micturition, amount voided, urgency, urine leakage and voiding difficulties. Information obtained was recorded and the symptoms were placed in the order of their prevalence. The subjects with altered mental state, any history of trauma to spine and lower quarter or urinary fistula and higher degree of pelvic organ prolapse were excluded. Data analysis was done using SPSS software, version 20.

Fig-1: Diagnostic criteria of the score urinary incontinence questionnaire based on classification suggested by Ishik et al. [8]. The vertical and horizontal lines show the stress score (s-s,0-26) and urge score (u-s, 0-26), respectively. Zone a refers to the zone bounded by s-s of 19-26 and u-s of 0-6. Stress incontinence is defined as zones a,b and c. Urge incontinence is defined as zone g, i, and j and mixed incontinence as zones e,f, and h.

STRESS SCORE	19-26	a			
	13-18	b	e		
	7-12	c	f	h	
	0-6	d	g	i	j
		0-6	7-12	13-18	19-26
	URGE SCORE				

Results

The mean age and weight of 100 females having incontinence out of 520 multigravida was 43.9 ± 6.2 years and 65.92 ± 6.46 kg respectively. The results revealed the average stress and urge score of all the patients was

12.13±6.5 and 8.33±6.23 respectively. Among the obstetrical factors, parity, age at first delivery, mode of delivery and prolonged labour were significant for outcome of UI as mentioned in Table 1. Prevalence of urinary incontinence was found significantly high in multiparous women having 3 or more children (P= 0.038) and age at delivery between 30-40 years (P= 0.021). The mode of delivery like caesarean section (P= 0.045) yielded significantly more cases of urinary incontinence along with prolong labour (P= 0.044).

The results based on the previously mentioned classification are shown in Fig. 2 along with the type and prevalence of each urinary incontinence. The distribution showed 49 out of 100 (49%) patients as stress incontinence, 22 out of 100 (22%) patients as Urge incontinence whereas 29 out of 100 (28%) were diagnosed as mixed incontinence. Total number of patient in a, b and c zone was found to be 49. Of these in 17 patients were in a zone, 18 patients were in b zone and 14 were in c zone. Similarly total number of patients in g, i and j zone were 22. Of these 2 patients were in g zone, 12 were in i zone and 8 patients were in j zone. Results showed that of the selected patients 28 patients were placed in the e, f and h. 13 patients were categorised in e zone, 9

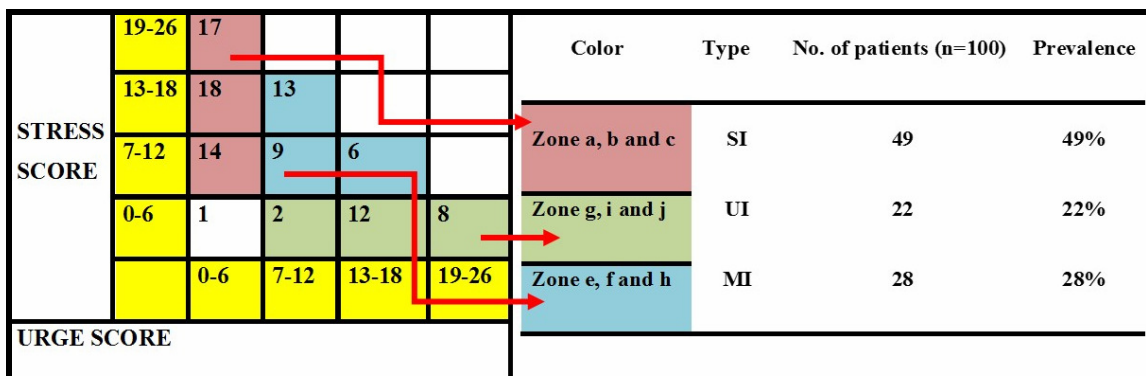
patients in f zone and 6 were in h zone on the described scale.

Table-1: Obstetrical factors playing a role in urinary incontinence

	Urinary incontinence (Percent prevalence)	P value
Parity		
≤2 children	74	0.038*
≥3 children	26	
Age at first delivery		
20-30 years	13	0.021*
30-40 years	87	
Mode of Delivery		
Vaginal	36	0.045*
Caesarean	64	
Prolonged labor		
Yes	18	0.044*
No	82	

*P≤0.05 significant for student independent t test

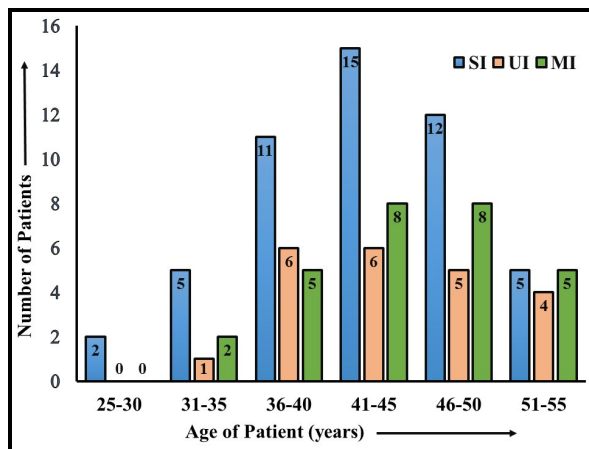
Fig-2: Prevalence of stress, urge and mixed incontinence based on scoring



The age wise distribution of the different patients are described in Figure 3. Gives comparative plot of age wise distribution of all patients. It was evident from the result that the highest number of patients diagnosed with stress incontinence were from age group of 41-45 years (n=15). Minimum number of patients diagnosed with stress incontinence were from age group of 25-30 years (n=2). Maximum patients with urge incontinence

were in the age groups of both 31-35 years and 36-40 years (n=6). Where no patient in the age group of 25-30 years was detected with urge incontinence. Mixed incontinence was most prevalent in the age group of 41-45 years and 46-50 years (n=8) whereas none in the age group of 25-30 years were diagnosed with mixed incontinence.

Fig-3: Age wise distribution of patient diagnosed with stress, urge and mixed incontinence (SI: Stress Incontinence; UI: Urge Incontinence; MI: Mixed Incontinence)



Discussion

The aim of the study was to determine the urinary incontinence in multigravida patients. Population based studies estimate that a large proportion of women report urinary incontinence (UI). There is a wide range of estimates of the prevalence of UI in the literature, from as low as 2.5% to as high as 60% [9-12]. The reasons for the divergence in estimates include variations in definitions of urinary incontinence, sampling methodologies, response rates and question formats [13-14]. Most of the data regarding risk factors for the development of incontinence have been derived from studies of volunteer or clinical subjects. This provides information of limited generalizability and restricts the level of inference regarding causality [15].

Alterations in the flow characteristics of the urinary stream are usually caused by obstruction. This leads to a diminution in both calibre and flow. In females, urethral diverticula and cystoceles may lead to diminution in flow. In both males and females, the flow pattern of the urinary stream may be influenced by bladder neoplasms, urethral diverticula, or neuropathic changes of the bladder. All forms of incontinence may be secondary to neuropathic disturbances of the bladder. Stress incontinence classically occurs in the multigravida or in the elderly female who has pelvic relaxation with a cystocele or urethrocele, or both [16]. Epidemiological studies are usually done on general populations and not

necessarily on those seeking treatment. Consequently, the results are not always useful with regard to allocating resources in developing new treatments for incontinence. That is, although the prevalence of low-grade stress incontinence may be high amongst postmenopausal women, often this condition is not bothersome.

Urge incontinence may have a somewhat lower prevalence, but is often extremely bothersome. It is this second condition that will more likely require treatment and allocation of healthcare resources. Large studies are also limited by the ability of questionnaires and surveys to accurately predict the etiology of incontinence. Ouslander et al (1987) showed that symptoms are less predictive of the actual type of incontinence as patients get older. Therefore, the older the patient the less predictive symptoms are of the actual cause of incontinence [17]. Data on the prevalence and causes of urinary incontinence in Indian multigravida women is scarce and therefore present study was undertaken to find out preliminary data on the prevalence of urinary incontinence in multigravida women.

Results showed that the prevalence of stress incontinence was highest (49%) in the selected sample (N=100). This result has been in accordance with previous reports. Diokno et al (2003) have also reported that combining the symptoms of stress and mixed incontinence, majority of women have stress incontinence. However the survey of Diokno et al (2003) consisted of a multi-stage probability sample of 13,912 households, to estimate these prevalence [18]. Incidence of urge and mixed incontinence were 22% and 28% respectively.

The results showed that the stress incontinence was highest in age group of 41-45 years whereas the incidence of urge incontinence was highest in 31 to 35 years as well as 36-40 years. This is contrary to the results of Thom [19] where for older women, the estimated prevalence of urinary incontinence ranged from 17 to 55% (median = 35%, pooled mean = 34%). Also in the study conducted by Thom, the stress

incontinence was predominated in younger women, whereas urge and mixed incontinence predominated in older women. It has been clearly demonstrated that exposure to obstetrical risk factors associated with pregnancy and delivery is the principal pathophysiological factor behind the wide diffusion of stress incontinence among women of childbearing age. Though Thom [19] has concluded that an accurate estimate of the prevalence of urinary incontinence depends on specifying the definition of incontinence and the age and gender groups of interest. However, Stress incontinence prevalence at 41-45 years being highest can also be correlated with the mean age of the selected population being in the range of 41-45 years as well.

Relevance to the clinical practice: This study reveals that the prevalence of stress incontinence in multigravida women is very high (49%). The findings will help increase the awareness of health care workers involved in the care of multigravida women about urinary incontinence and aid the design of more intensive education programmes directed towards the prevention of urinary incontinence esp. stress incontinence in multigravida women. In the context of primary health care, assessing and managing urinary incontinence should be included in care plans for female patient with urinary incontinence.

Limitations of the study: The present study was localised in one hospital and lacked geographical

variation. Further the survey did not take into consideration the etiology and hence the actual cause cannot be identified from this survey. Small sample size considered in the study is another major limitation of the study. This survey used a questionnaire based on symptomatic analysis to determine the prevalence. Ouslander et al showed that symptoms are less predictive of the actual type of incontinence as patients get older. Therefore, the older the patient the less predictive symptoms are of the actual cause of incontinence [17].

Conclusion

The findings showed that the prevalence of stress incontinence was highest (49%) in the selected sample (N=100). The stress incontinence was highest in age group of 41-45 years whereas the incidence of urge incontinence was highest in 31 to 35 years as well as 36-40 years.

The findings will help increase the awareness of health care workers involved in the care of multigravida women about urinary incontinence and aid the design of more intensive education programmes. For generation of more conclusive evidence on prevalence of urinary incontinence in India, studies based on larger population is needed.

References

1. Leach GE, Dmochowski RR, Appell R, Jerry G, Blaivas HR, Hadley, Lubner KM, Mostwin JL. Female Stress Urinary Incontinence Clinical Guidelines Panel Summary Report on Surgical Management of Female Stress Urinary Incontinence. *The Journal of Urology* 1997; 158:875-880.
2. Pricen N, Dawood R, Jackson SR. Pelvic floor exercise for urinary incontinence: A systematic literature review. *Maturitas* 2010; 67:309-315.
3. Hampel C, Wienhold D, Benken N, Eggersmann C, Thüroff JW. Definition of overactive bladder and epidemiology of urinary incontinence. *Urology* 1997; 50(6): 4-14.
4. Fantl JA, Cardozo L, McClish DK. Estrogen therapy in the management of urinary incontinence in postmenopausal women: a meta-analysis. First report of the hormones and urogenital therapy committee. *Obstet Gynecol* 1994; 83(1):12-18.
5. Health survey questionnaire. *Market and Opinion Research International (MORI)*, 95 Southwark Street, London SE1 0HX, UK, 1990.
6. Hunskaar S, Burgio K, Diokno AC et al. Epidemiology and natural history of urinary incontinence. In: Abrams P, Cardozo L, Khoury S, editors. *Incontinence*. 2nd ed. *Health Publication* 2002; 301-319.
7. Van Brummen HJ, Bruinse HW, van de Pol G, Heintz APM, Van der Vaart CH. The effect of vaginal and caesarean delivery on lower urinary tract symptoms: what makes the difference?. *Int Urogyn J* 2007; 118(3):133-139.
8. Ishiko O et al. Classification of female urinary incontinence by the scored incontinence questionnaire. *Int. J. Gynae. & Obs.* 2000; 69:255-260.
9. Nygaard I, Thom D, Calhoun E. Urinary incontinence in women. In: *Urologic Diseases in America*. US Department of Health and Human

- Services, Public Health Service, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. Edited by M. S. Litwin and C. S. Saigal. Washington, D.C.: United States Government Publishing Office, *NIH Publication* No. 04-5512, 2004; 71-103 (Also available at www.uda.niddk.nih.gov)
10. Hannestad YS, Rortveit G, Sandvik H, Hunskaar S. A community-based epidemiological survey of female urinary incontinence: The Norwegian EPINCONT Study. *Journal of Clinical Epidemiology* 2000; 53(11):1150-1157.
 11. Diokno AC, Brock BM, Brown MB, Herzog AR. Prevalence of urinary incontinence and other urological symptoms in the noninstitutionalized elderly. *J Urol*, 1986; 136:1022.
 12. Holtedah K, Hunskaar S. Prevalence, 1-year incidence and factors associated with urinary incontinence: a population based study of women 50-74 years of age in primary care. *Maturitas*, 1998; 28:205.
 13. Hunskaar S, Burgio K, Diokno AC, Herzog AR, Hjälmås K, Lapitan MC. Epidemiology and natural history of urinary incontinence. In: Incontinence, 2nd International Consultation on Incontinence, July 1-3, 2001, Paris, 2nd ed. Edited by P. Abrams, L. Cardozo, S. Khoury and A. Wein. *Plymouth: Plymbridge Distributors Ltd.*, chapt. 3, 2002; 165.
 14. Hunskaar S, Burgio K, Diokno A, Herzog AR, Hjalmas K, Lapitan MC. Epidemiology and natural history of urinary incontinence in women. *Urology*, 2003; 62:16.
 15. Brown JS, Nyberg LM, Kusek JW, Burgio KL, Diokno AC, Foldspang A et al. Proceedings of the National Institute of Diabetes and Digestive and Kidney Diseases International Symposium on Epidemiologic Issues in Urinary Incontinence in Women. *Am J Obstet Gynecol*, 2003; 188: S77.
 16. White JM, O'Brien DPI. Incontinence and stream abnormalities. In: Walker HK, Hall WD, Hurst JW, eds. *Clinical Methods: The History, Physical, and Laboratory Examinations*. 3rd ed. Boston, MA: Butterworths; 1990.
 17. Ouslander J, Staskin D, Raz S et al. Clinical versus urodynamic diagnosis in an incontinent geriatric female population. *J Urol*. 1987; 137:68.
 18. Diokno AC. Incidence and Prevalence of Stress Incontinence. *Adv Stud Med* 2003; 3(8E):S824-S828.
 19. Thom D. Variation in estimates of urinary incontinence prevalence in the community: effects of differences in definition, population characteristics, and study type. *J Am Geriatr Soc*. 1998; 46(4):473-480.

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