207

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PREVALENCE AND DEGREE OF BOTHER OF PELVIC FLOOR DISORDERS IN OBESE WOMEN

Hypothesis / aims of study

To determine the prevalence and degree of bother from pelvic floor disorders (PFD) in a managed care population of obese women, and to evaluate whether the prevalence of PFD increases with higher degree of obesity. Our hypotheses were that the prevalence of PFD would be high in obese women and significantly associated with degree of obesity, and that the degree of bother from PFD would increase with higher degree of obesity.

Study design, materials and methods

A secondary analysis was performed on the 1,155 obese (body mass index [BMI] ≥ 30 kg/m^2) female members of a health maintenance organization enrolled in a large epidemiologic study of 4,458 women [2]. A validated questionnaire [1] identified women PFD including pelvic organ prolapse (POP), stress urinary incontinence (SUI), overactive bladder (OAB), and anal incontinence (AI). Degree of bother for each condition was assessed using a 100 mm visual analog scale (VAS). The prevalence of each PFD and degree of bother were compared across three categories of obesity (obese ≥ 30 kg/m^2, super-obese ≥ 35 kg/m^2 and morbidly obese ≥ 40 kg/m^2). Chi-squared test of proportions and Kruskal-Wallis analyses were used to compare the prevalence of each PFD by degree of obesity. ANOVA was used to compare mean VAS scores across the three obesity groups. Associations with a two-sided p-value of less than 0.05 were considered significant. Power calculations were based on the primary objective of the study to identify the prevalence and risk factors for PFD. Post hoc power calculations determined that the current sample size had greater than 99% power to detect the differences in prevalence of each PFD identified between the three obesity groups.

Results

The mean age (± standard deviation) of the obese cohort (n=1,155) was 56.4 (± 14.8) years, and the mean BMI was 35.4 (± 5.3). The race and ethnicity of the obese women were 58% non-Hispanic white, 23% Hispanic, 14% African-American, 3% Asian/Pacific Islander, and 2% other or unknown race. Overall the prevalence of PFD in all women with a BMI ≥ 30 kg/m^2 was: POP 9%, SUI 24%, OAB 22%, AI 29%, and any one or more PFD 46%. In comparison, the prevalence of PFD in the 3,238 women with BMI < 30 kg/m^2 was: POP 6%, SUI 12%, OAB 10%, AI 22% and any one or more PFD 32% ($p<0.05$). The prevalence of any one or more PFD was highest in morbidly obese women (57%, CI 0.49-0.64) compared to super-obese (53%, CI 0.47-0.58) and obese women (44%, CI 0.41-0.48), $p<0.05$ (Table 1). Although a statistically significant increase in the prevalence of POP and SUI was found with higher degree of obesity, a similar trend of increasing prevalence of OAB and AI was also seen with higher degree of obesity. There were no significant differences in the prevalence of any individual or combined PFD between morbidly and super-obese women. Degree of bother related to each PFD did not vary significantly by degree of obesity (Table 1).

Interpretation of results

In this population, obese women had a significantly higher prevalence of PFD compared to non-obese women, and there was a consistent trend toward increasing prevalence with higher degree of obesity. This trend reached significance for POP, SUI and any one or more PFD, and was nearly significant for OAB and AI. There may be a threshold effect on prevalence above a BMI of 35 kg/m^2 because no significant differences in prevalence could be found between the super-obese and morbidly obese groups for any PFD. Associated bother for any of the PFD did not increase with the degree of obesity.

Concluding message

Providers caring for obese women should recognize the co-existence of obesity and pelvic floor dysfunction, and future study should evaluate PFD as a possible indication for weight reduction services.

References

[1] Int Urogynecol J Pelvic Floor Dysfunction (2005) 16(4);272-84.
[2] Obstet Gynecol (2006) 107(6);1253.

Table 1. Prevalence and degree of bother (VAS, mm ± SD) for pelvic floor disorders by degree of obesity (n=1,155).

CONDITION	OBESE BMI ≥ 30 kg/m^2	SUPER-OBESE BMI ≥ 35 kg/m^2	MORBIDLY OBESE BMI ≥ 40 kg/m^2	*p* VALUE
PROLAPSE **N** **%** **(95% CI)**	**48/690** **7.0%** **(5.3-9.1)**	**28/284** **9.9%** **(6.9-13.9)**	**23/181** **12.7%** **(8.6-18.4)†**	**0.040§**
VAS	**73.2 ± 19.9**	**72.5 ± 20.1**	**66.8 ± 18.6**	**0.422***
STRESS INCONTINENCE **N** **%** **(95% CI)**	**135/684** **19.7%** **(16.9-22.9)**	**91/281** **32.3%** **(27.2-38.1)†**	**54/179** **30.2%** **(23.9-37.3)†**	**<0.001§**
VAS	**66.3 ± 14.8**	**65.1 ± 14.2**	**64.5 ± 14.2**	**0.699***
OVERACTIVE BLADDER **N**	**136/674**	**71/272**	**46/172**	**0.054§**

% **(95% CI)**	**20.2%** **(17.3-23.4)**	**26.1%** **(21.2-31.6)**	**26.7%** **(20.7-33.8)**	
VAS	**78.8 ± 11.4**	**76.8 ± 10.8**	**80.5 ± 12.1**	**0.216***
ANAL INCONTINENCE **N** **%** **(95% CI)**	 **188/690** **27.2%** **(24.1-30.7)**	 **93/284** **32.7%** **(27.6-38.4)**	 **59/181** **32.6%** **(26.2-39.7)**	**0.178§**
VAS	**42.0 ± 17.9**	**42.4 ± 17.9**	**41.5 ± 13.6**	**0.955***
ANY PFD **N** **%** **(95% CI)**	 **292/659** **44.3%** **(40.6-48.1)**	 **143/272** **52.6%** **(46.6-58.4)†**	 **96/169** **56.8%** **(49.3-64.0)†**	**0.004§**

§Kruskal Wallis test. †Mann-Whitney test (compared to obese women). *ANOVA between visual analog scale means for obese, super-obese and morbid obese women. PFD, pelvic floor disorder; BMI, body mass index; VAS, visual analog scale; CI, confidence interval.

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Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Kaiser Permanente Southern California Institutional Review Board**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**