

POLYCYSTIC OVARY SYNDROME HAS A PROTECTIVE EFFECT AGAINST URINARY INCONTINENCE?

Hypothesis / aims of study

Some studies have shown that androgens may potentially play an important role in pelvic floor and lower urinary tract because these structures are sensitive to androgens (1). Specially the levator ani and urethral sphincter contain large number of androgen receptors that could improve muscle mass and function resulting in fewer urinary incontinence symptoms (1). Therefore, it is possible that women with Polycystic Ovary Syndrome (PCOS) have less urinary incontinence (UI) than women without this problem. The aim of this study was to compare the frequency of UI symptoms between women with and without Polycystic Ovary Syndrome and their general quality of life in health

Study design, materials and methods

This is a cross-sectional controlled study. The study included 196 women with and without PCOS, aged between 18 and 40 years, with no previous pelvic surgery, who did not practice pelvic floor muscles training, not using hormonal medication, and with no other endocrine diseases that were not the PCOS. Women were recruited in a University Hospital. They were divided into four groups. Group I: non-obese with PCOS (normal body mass index and overweight), Group II: obese women with PCOS, Group III: women with a negative diagnosis of PCOS (normal body mass index and overweight), and Group IV: obese women with a negative diagnosis of PCOS. The diagnosis of PCOS was set following the criteria of the Rotterdam Consensus of 2003 (2). Women were considered incontinent if they had any complaint of urinary leakage one or more times per week during the last month. The women reporting UI answered to the International Consultation on Incontinence-Questionnaire ICIQ-SF. All participants completed a general questionnaire on quality of life in health (SF-36). The sample size calculation was performed based on a pilot sample composed of 10 women in each of the four groups. It was used the statistical method for dichotomous variables. Sample size for each group considering the different comparisons of proportion based on percentage of women with urinary incontinence symptom was $n = 46$ ($\alpha=0.05$ and $\beta=0.05$). To compare the group regarding the presence of urinary incontinence was used Fisher's exact test and a logistic regression model. It was used a model of quantile regression to compare the groups in relation to the scores of ICIQ and SF36.

Results:

The mean age of the participants was 29.6 years. The percentage of multiparous women in each group was: Group I 10.87%, group II 28.57%, group III 27.27%, group IV 32.61%. The groups were homogeneous in relation to parity ($p=0.06$). In group I 7% had UI, group II 27%, group III 9% and group IV 35%. There was a statistically significant difference in the UI between all groups ($p=0.01$). No statistically significant differences were observed between groups I and III ($p=0.7$) and groups II and IV ($p=0.5$). Table 1 shows the mean and standard deviation of the domains of the general questionnaire on quality of life in health (SF-36). It was observed a significant difference in the functional capacity (FC) domain between the group III and II ($p<0.04$), in the general health (GH) domain between the Group I and II, the group III and II and the group IV and II ($p<0.01$). In vitality (V) domain it was noticed a significant difference between the group I and II and the group III and II ($p<0.01$). In mental health (MH) domain a significant difference appeared between the group III and II ($p<0.01$).

Interpretation of results

The results showed that there is a significant difference in the UI between the groups but no difference between the comparable groups, although the group of obese women without PCOS have a higher percentage of UI when compared to the group of obese PCOS. These results may be due the fact that obesity is a risk factor to develop UI, and to the fact that hyperandrogenism, potentially influences an increase in muscle mass and strength, playing an importance role in improving the function of the pelvic floor muscle (1). It is possible that the difference in the percentage of UI was lower in the group of obese women with PCOS comparing with obese women without PCOS, due to the fact that obesity, particularly the abdominal phenotype, may directly worsen hyperandrogenism in women with PCOS by reducing SHBG serum levels, therefore increasing the delivery of free androgens at the level of peripheral tissues (3). In this study in the intra-group analysis, the frequency of urinary incontinence was higher in multiparous women, which agrees with the literature, but the groups were homogeneous in relation to this variable. Assessing the quality of life, PCOS obese women had a worse score in the general health domain, in vitality domain and in mental health domain compared to the other groups. These findings are consistent with studies showing that women with PCOS have marked reductions in quality of life. Changes in physical appearance, especially hirsutism, and infertility have been identified as important factors contributing to psychosocial problems. In addition, obesity is a risk factor for developing cardiovascular disease (CVD), such as insulin resistance, dyslipidemia, diabetes mellitus, hypertension, endothelial dysfunction, central obesity and markers chronic pro-inflammatory and low fitness physics. There is a need for further studies comparing larger samples not only in relation to the presence of UI, but also assessing the pelvic floor muscle mass and function and their relation to hormone levels in women with PCOS.

Concluding message

Although the group of obese women with PCOS has presented the highest percentages of urinary incontinence, there was no statistical difference between the groups. The obese women with PCOS had the worst quality of life

Table 1: Mean and standard deviation of the domains of the general questionnaire on quality of life in health (SF-36), of the four groups.

Group	Mean Domain			
	FC (SD)	GH (SD)	V (SD)	MH (SD)
I (n=46)	89.35	69.96	59.78	60.70
Group II	14.24	17.50	20.55	21.60
II (n=49)	75.31	63.92	46,94	54,69
III (n=55)	32.51	20.97	25,53	23.49
Group IV	92,55	78,18	62,18	69,82
IV (n=46)	10.13	17.64	19.14	18.42
	76,30	71,43	55,11	61,48
	22.20	22.78	23.03	22,76

References

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What were the subjects in the study?	HUMAN
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Specify Name of Ethics Committee	Ethics Committee of the Hospital of the Faculty of Medicine of Ribeirão Preto - São Paulo - Brazil
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes