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The Efficiency of Physiotherapy on the Quality of Life of Women Bearers of Urinary Incontinence

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Abstract

Introduction: The Urinary Incontinence (UI) is a kind of lower urinary tract disfunction that may happen when there are alterations in the physiologic urination process. The use of therapeutic exercises has shown itself very efficient in the treatment of UI, with the objective of improving the efficiency of the urethral sphincter during the intra-abdominal pressure raise periods.

Objective: Evaluate the efficiency of the perineal exercises and vaginal electrostimulation on the quality of life of women bearers of urinary incontinence.

Method: About 10 patients with urinary incontinence (UI) were submitted to a series of perineal exercises and electrostimulation. A UI specific questionnaire "Incontinence Quality of Life Instrument" (I-QOL) was used for the evaluation of the patients.

Results: There was an improvement in the general score of the I-QOL whereas without significant improvement values.

Conclusion: Therapeutic Exercises associated to electrostimulation may bring improvements to the urinary incontinence patients' quality of life.

Keywords: Urinary incontinence; Quality of life; Physiotherapy

Introduction

The International Continence Society (ICS) recently defined urinary incontinence as "involuntary loss of urine" [1]. It's calculated that the urine loss afflicts 50-69% of women [2]. UI is a kind of lower urinary tract dysfunction and may happen when there are alterations in the physiologic process of urination or in the structures involved on the support or sustention of the organs responsible for urination [3]. It consists in a condition that doesn't set risks of life, but causes deep psycho-social changes to the woman [4].

Its prevalence varies according to the type and definition. It's a very common complaint (49.5%); it afflicts mainly 50 years old women (after menopause) and it worsens with age. UI can be divided into several kinds and the most common is: stress urinary incontinence (SUI), being a very frequent type among women [3]. It afflicts about 23% of the population [5] and in Brazil there is a prevalence of 35% in women in the pre-menopause or menopause [6].

UI interferes directly on women's daily activities, in a manner that those who struggle from this condition present lower levels of quality

of life [7]. Its psycho-social effect might be more devastating than the consequences on the health, with multiple and embracing effects that influence the daily activities, the social interaction and the self-perception of the health state [8].

Measuring instruments of quality of life are commonly used in the evaluation of diseases and treatments to determine the physical self-perception, psychological and social welfare. For this reason, the Continence International Society recommends that those evaluations are included, in all studies, as a complement for the clinical measures [9].

The most used objective measure in clinical studies of UI evaluates the quantity and frequency of urine loss by urination diaries, absorbent tests or urodynamic parameters. Such observations may reflect the loss severity, yet do not show the changes in the daily activities [10]. The questionnaire application in incontinent women is well accepted, once that the impact over individual factors may be evaluated. In order to be efficient, those instruments must be simple, be relevant and of easy comprehension [11].

Objectively, we have the "Incontinence Quality of Life Instrument" questionnaire (I-QOL), "a specific tool for evaluating the quality of life,

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for patients with UI". It was developed in English, but for its practicality and simplicity it has already been introduced in at least 15 countries [12].

The kinesitherapy is a treatment that has been showing itself very efficient on the treatment of UI, with the objective of improving the efficiency of the urethral sphincter during the periods of intraabdominal pressure raise [13]. The Pelvic Floor Electro Stimulation (PFES) also has shown promising results [14]. However, it's not well standardized in the literature the efficiency of any specific physiotherapy protocol.

Therefore, the objectives of this research were to evaluate the effect of perineal exercises and EVE on the quality of life of patients with urinary incontinence.

Materials and Method

This research was developed in the Urogynecological Physiotherapy Ambulatory of Mario Covas State Hospital of Santo André (HEMC) and in the Urogynecological Physiotherapy Ambulatory of São Caetanodo do Sul's Municipal Hospital and had the approval of the Ethics Committee in Research of the Faculty of Medicine ABC and under number of the feedback 722.449 on 07/18/2014.

Inclusion criteria

10 women above the forties, bearers of stress, urge or mixed urinary incontinence who would present medical prescription for the physiotherapy that signed a Free and Enlightened Consent Term (FECT) were included.

Exclusion criteria

Patients who had contraindications to the practice of physical exercises or the use of PFES were excluded, besides patients who possessed any cardiovascular, endocrine, orthopedic or neurologic disturb.

Procedures

Initially the volunteers were informed about the development of the research and if they agreed in participating as volunteers, they would sign the Free and Enlightened Consent Term-FECT. Following that the volunteers were oriented to fill the I-QOL quality of life questionnaire.

We applied the I-QOL ("Incontinence Quality Of Life Instrument"), which is a specific questionnaire to subjects with UI in the quality of life analysis. According to Diniz Santos et al. [15], the I-QOL is composed by 22 questions organized in three areas. The first examines the limitation of human behavior (questions 1, 2, 3, 4, 10, 11, 13, e 20), the second, the psycho-social impact (questions 5, 6, 7, 9, 15, 16, 17, 21, e 22) and lastly the third evaluates the shame and social embarrassment (questions 8, 12, 14, 18, e 19).

Numerical values are attributed to all answers varying from 1 to 5 which added produce a total value. Such values, added, must be transformed in percentuals; therefore, the evaluation of quality of life must vary between 0 and 100 points, considering that the less they obtained score, the worse the quality of life. The volunteers must be capable to read, comprehend and answer all the questions of I-QOL.

The volunteers participated on a physiotherapy treatment, in 1 hour sessions, twice a week, during 10 sessions. Initially the patients were evaluated through a physiotherapeutic evaluation form which stated personal data, main complaint, previous urogynecologic history, gynecological and obstetrical antecedents and following this, it was performed the physical exam, being made at first through the visualization of the external genitalia and checking if there was the presence or absence of visible voluntary twitch of the pelvic floor after a verbal command from the physiotherapist. In sequence, the bi-digital palpation for the functional evaluation of the pelvic floor's muscle bound strength.

The treatment consisted of kinesitherapy protocol, which was performed in a group of three maximum patients, with the objective of strengthening the pelvic floor muscles. The patients were stimulated to perform three series of exercises of fifteen phasic contractions (fast) and fifteen tonic contractions (slow), those with the maintenance of a few seconds, that evolved over the course of the sessions, all in supine, sitting and in orthostatism.

After this protocol squat exercises were performed with or without dumbbells performing the tonic twitch of the pelvic floor's musculature and finally, strolling in a path, educating the incontinent about the twitches. It must be noted that previous to the perineal exercises, these patients were oriented on how to contract the pelvic floor's muscles properly, also being instructed to the home upkeep of the pelvic floor's twitch exercises in all of their daily life activities.

PFES was performed through equipment with an intra-cavity perineal electrode with two metal rings that was introduced with the help of a lubricant gel and a male condom on the electrode. The PFES sessions were interspersed with the kinesitherapy sessions, so they were performed once a week, in individual sessions during 45 minutes.

The treatment happened in physiotherapy clinics and was performed by adept physiotherapists. After the end of the 10 sessions, the patients filled the I-QOL questionnaire of quality of life once again for the comparison of the results.

Statistical analysis

The data descriptive analysis was performed; the qualitative variables were presented by relative frequency and the quantitative by average, standard deviation, minimum and maximum (the data presented normal distribution, with the test from Shapiro-Wilks, p<0.05).

To compare the differences on the quality of life before and after the physiotherapeutic treatment, t Student test was used. For all this analysis 95% of trust level was adopted and the statistical analysis was performed on the statistic software stata Version 11.0.

Results

Nearly 10 women of 55.2 ± 12.4 years average age, varying from 40 to 76 years old participated in the present study. Graphic 1 shows the proportion of women according to the UI type, seeing that SUI is the most predominant kind in this study, where most women obtained this diagnosis. The minority was diagnosed with mixed UI and urge UI (Figure 1).

Table 1 refers to the three areas of quality of life (human behavior, psycho-social impact and shame and social embarrassments) evaluated by the I-QOL questionnaire. It can be noticed that significant statistical values weren't found in any of the three before and after the physiotherapeutic intervention.

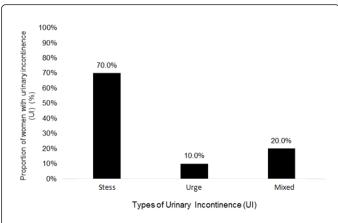


Figure 1: Proportion of women by urinary incontinence type (UI).

I-QOL Areas	Before	After	p*
	Average (TL 95%)	Average (TL 95%)	
Human Behavior	66.0 (52.6- 79.4)	71.3 (55.3-87.2)	0.575
Psycho-social Impact	70.4 (52.5-88.4)	80.4 (64.0-96.9)	0.365
Shame and Social Embarrassment	52.4 (35.6-69.2)	60.4 (40.6-80.2)	0.494

I-QOL: "Incontinence Quality of Life Instrument"; Trust Level (TL 95%)-95% Trust Level. *Probabilistic Level for the t Student test, adopting significance level p<0.05.

Table 1: Punctual Estimate and interval estimate of the quality of life areas evaluated by the I-QOL questionnaire.

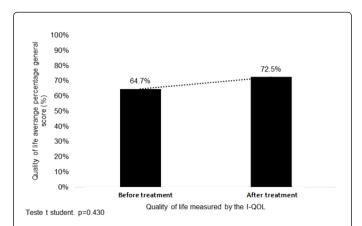


Figure 2: Quality of life average percentage general score of women with urinary incontinence before and after the physiotherapeutic treatment. *I-QOL: "Incontinence Quality of Life Instrument"; §T student test, adopting significance level p<0.05.

Evaluating the general score of quality of life of women with urinary incontinence before and after the 10-session physiotherapeutic treatment it is noticed that they wasn't statistically significant values (p=0.430). The comparison between the quality of life before and after the treatment is found in Figure 2.

Discussion

The present study evaluated the quality of life of women with UI before and after the physiotherapeutic treatment based on the use of kinesitherapy and PFES.

The results presented a volunteers average age of 55.2 ± 12.4 years old (40 to 76 years old), being similar to the study performed by Dedicação [16], where the studied age group also obtained a 55.2 years average (34 to 85 years old). In a Brazilian study performed by Agostinho [17], where 1606 women were volunteers, 45.05% of incontinent women were found in the 50 to 59 years old age group and according to Guarisi et al. [18], in a study with 456 women the occurrence in the 45 to 60 years old age group was noticed. Several studies that make use of questionnaires state that a UI predomination in mid-age women had been noticed within 9% to 60%, according to Elving [19].

Menopause is one of the factors that must be considered as a risk to the UI of women in this age group. According to Guarisi et al. [18] statement, menopause is a period in which there is a decrease of the endogenous estrogen levels, a fact that is supported by the intimate embryological and anatomical association between the genital and urinary tracts. Despite this, in an epidemiological study from Thom [20], it wasn't found to increase of the prevalence of UI in the menopause period. In the same way, a study with 541 women from 42 to 50 found significantly less incontinence among the menopause, compared to the ones who were in pre-menopause, as Burgio et al. [21] state.

Guarisi et al. 18 state that literature also does not seem to be conclusive towards the relations between menopause and UI, although many women relate the appearing of UI with this period.

In the present study, the proportion of women according to the UI type was of 70% diagnosed as SUI strengthening studies like the Yang et al. [22] one, that demonstrated that the light form of SUI was present in 57% of the studied cases and also being similar to the study of Guarisi et al. [18], where the prevalence of SUI was in 30% of the climacteric patients. In the study of Virtuoso [23] performed with 209 senior ladies, the proportion to the UI typology was of 28.7% of women with EUI.

Relevant data are found in a study from Mendonça et al. [24], where 410 Brazilian women attended in a specialized service were interviewed and the prevalence of SUI was seen in only 12.68% of the women total, being that the biggest frequency of this complaint (48%) occurred among women between 41 to 50 years old. Also in another study of Moller et al. [25], it was observed 16% of SUI on danish women from 40 to 60 years old, being that there was an increase of these urinary symptoms from 40 to 55 and a decrease after this age.

According to Marques et al. [3], the SUI is a kind of UI very frequent among women. It afflicts about 23% of the population and in Brazil there is the prevalence of 35% of women in pre-menopause or menopause.

In the current study was elected the specific questionnaire to subjects with UI I-QOL ("Incontinence Quality Of Life Instrument"), to evaluate the quality of life of the volunteers before and after the physiotherapeutic intervention, being this one built of perineal kinesitherapy sessions interspersed to the PFES sessions with intracavity electrode. And it was observed that there was an improvement in the average before and after the 10-session treatment in the three areas that are evaluated in the questionnaire: human behavior (66.0

versus 71.3), psycho-social impact (70.4 versus 80.4) and shame and social embarrassment (52.4 vs. 60.4). Despite this, the significance statistic wasn't reached in this study (p<0.05).

Differently from our results, a study performed by Franco et al. [26], where 42 women diagnosed with overactive bladder or mixed UI where volunteers, being those divided for PFES treatment or electro stimulation of the tibial nerve. The quality of life in this discussed study was evaluated through the generic questionnaire SF-36 and the especific I-QOL. Relating to the found I-QOL results, both groups obtained a significant improvement in all areas of the questionnaire, more specifically the tibial nerve electro stimulation group that had a relevant improvement. As well as in the study of Berghmans [27], that used I-QOL to evaluate the PFES treatment on patients with overactive bladder diagnosis and also presented a significant difference after the treatment.

In the same way, studies of Pal et al. [28], Svihra et al. [29] and Vandoninck et al. [30], where those ones also used the specific I-QOL to evaluate the effects of UI treatment with electro stimulation of the tibial nerves and in the same way obtained a significant improvement in the total score, being more expressive the study of Svihra et al. [29], where the improvement of the symptoms of hyperactive bladder was observed in 56% of patients accompanied by a significant improvement in the quality of life evaluated by I-QOL.

Something distinct from the present study was found in Diniz Santos et al. 15 study, where 45 patients with SUI were studied and those were divided in two groups: one composed by 24 patients that were treated by PFES and the other group with 21 patients that submitted themselves to the treatment with vaginal cones. To evaluate the results of the physiotherapeutic techniques, it was used a 7-day urination diary, the one-hour absorbent test and the I-QOL questionnaire, before and after 4 months of the beginning of the treatment. Analyzing the results referring to the I-QOL it's possible to notice a significant improvement in the quality of life measured by the I-QOL on patients treated with PFES and the therapy with vaginal cones, being that the improvement was similar in both groups after the treatment.

In this study the use of PFES and pelvic floor kinesitherapy was adopted as a physiotherapeutic treatment for UI; in our results there was an observed clinical improvement, when was analyzed the quality of life level before and after (64.7% vs. 72.5%) the 10-session therapeutic intervention, although without statistical significance (p<0.05).

In a study similar to the performed one, from Bernardes et al. [14] that had the objective of comparing patient's bearers of genuine SUI that submitted themselves to a kinesitherapy protocol with the ones that performed PFES, being 7 patients submitted in each group during 10 consecutive days of treatment. A non-parametrical test was used for comparing the treatments and it was observed that all patients achieved a partial ou total improvement within 10 sessions; both kinesiotherapy and EVE came up effectives in the treatment, although kinesiotherapy has shown a tendency to be the chosen treatment for the perineal effort.

Results are seen in the study of Fitz et al. [31], which evaluated the impact of the pelvic floor muscles training on the quality of life of women with SUI by the King's Health Questionnaire (KHQ), urination diary and after three months of treatment. It was stated in the study a significant decrease of the scores average in the areas evaluated by the questionnaire and a significant increase in the muscular endurance

and strength which led to an improvement to the quality of life of women with SUI. In a study of Silva et al. [32] it was also observed a significant improvement on the quality of life, through the SF-36 and a subjective questionnaire of satisfaction with the treatment, after the training with exercises intended to the pelvic floor muscles during 9 weeks of treatment. In this study women improved the vaginal region conscience improving the active twitch this way.

In a study from Gomes [33], results are seen in a case study, which verified the effectiveness of the treatment for female UI through kinesitherapy and PFES. The treatment in this study was based in 20 sessions, twice a week and built of kinesitherapy and PFES and it may be concluded that there was a contribution to the improvement of the SUI situation and consequently on the quality of life of that patient.

According to Gomes [33], the use of isolated therapies in the UI treatment has been descripted, although, due to its multifactorial cause; when associated therapies are used, better results are obtained.

Reinforcing, PFES has shown promising results and it may be said that reeducating the pelvic floor, though for better results, it must be associated to other conservative treatment methods such as pelvic floor kinesitherapy, as stated by Bernardes et al.[14].

As stated by Fitz [31], although UI doesn't put the afflicted lives directly at risk, there is a consensus that the fact that it may negatively affect the quality of life in many aspects, social, physical, personal or sexual. Through this study it may be noticed an improvement in the analyzed variables, being important clinically, although we don't have a statistical significance, what may have occurred due to the small number of the sample. Another factor that possibly may have influenced the results to not have statistical significance would be related to the number of sessions defined in this study to the physiotherapeutic treatment being ten sessions, justified by the difficulty towards the regularity or attendance of those women in treatment.

Such difficulties maybe are related to the lack of knowledge of the population about the possible treatments, the possibility of worsening the symptoms and the possibility of curing UI. The shame or embarrassments caused on those patients make them believe that the loss of urine is a process common to the aging or multiparty, making the diagnosis and early treatment handicapped, interfering in the quality of life.

Conclusion

There was no significant effect from a specific kinesiotherapy protocol on the quality of life of the patients with urinary incontinence.

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