ORIGINAL ARTICLE

Impact of electrical stimulation on the quality of life of patients with urinary incontinence at the Hospital de las Mujeres “Dr. Adolfo Carit Eva” from January 2011-May 2012: an observational review

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Abstract  The study of conservative treatments for urinary incontinence has become an important necessity in the face of an aging global population. Electrical stimulation is a pelvic floor rehabilitation therapy that has provided improvement of up to 50%. Despite the fact that electrical stimulation therapy is currently used at the national level, there is little information available on it. The present retrospective study evaluated the impact of electrical stimulation on the quality of life of patients with urinary incontinence. A validated King’s Health Questionnaire was applied; it is a specific instrument for measuring the quality of life of these patients. The statistical analysis was carried out using the Stata 10.0 software and the Student’s t test was employed. Electrical stimulation was shown to improve the quality of life of patients presenting with urinary incontinence.

Impacto de la electro estimulación en la calidad de vida de las pacientes con incontinencia urinaria en el Hospital de las Mujeres “Dr. Adolfo Carit Eva”, en el periodo enero del 2011 a mayo del 2012. Una revisión observacional

Resumen  El envejecimiento de la población incentiva al estudio de tratamientos conservadores para la incontinencia urinaria. La electro estimulación es una terapia de rehabilitación del piso pélvico, con la cual se ha descrito hasta 50% de mejoria. En la actualidad a nivel nacional...
Introduction

The pelvic floor is a structure that aids in the functions of urinary continence, anal continence, and in the support of the pelvic organs; it is made up of myofascial and nerve structures that form an anatomic and functional unit.1 Urinary incontinence is defined by the International Continence Society (ICS) as the complaint of “any involuntary leakage of urine”,1 and a prevalence of up to 55% has been described.2 Aging and the change in the demographic pyramid has led to the projection that there will be a significant increase in the number of patients presenting with urinary incontinence over the next decades.3

The diagnosis of urinary incontinence is principally made through the clinical history, and so the complete severity of the clinical symptoms are not evaluated by objective variables. Therefore, the International Urogynecological Association has suggested incorporating subjective and semi-subjective variables (for example: questionnaires) for measuring improvement in patients with urinary incontinence.3

Surgery is recognized as the main treatment; however, with the current development of greater knowledge of the pelvic floor, new, more conservative alternatives have been proposed that can be equally as successful.4 Conservative management of urinary incontinence involves behavioral therapies that encompass bladder education, a micturition schedule, and rehabilitation of the pelvic floor muscles.4 The rehabilitation techniques include pelvic floor exercises, vaginal cones, biofeedback, and electrical stimulation.5,6 The aim of electrical stimulation in the management of stress urinary incontinence is to strengthen muscles through medium frequencies (50-80 Hz) and in the management of urge urinary incontinence is to achieve muscular strengthening and bladder inhibition through low frequencies (5-15 Hz).7,10

According to different studies, the training of pelvic floor muscles alone or in conjunction with other therapies such as biofeedback, electrical stimulation, and vaginal cones, together with an evaluation of the patient’s state of mind before, during, and after the therapies, has led to positive results in the treatment of stress urinary incontinence.4,11,16

The present article offers a brief description of this subject and attempts to show the impact of electrical stimulation on the quality of life of patients with urinary incontinence after rehabilitation therapy that were treated at the Hospital de las Mujeres “Dr. Adolfo Carit Eva” (HOMACE) within the time frame of January 2011 to May 2012.

Methods

The study population was made up of patients being seen for urogynecologic consultation at the Gynecology Department of the Hospital de las Mujeres Dr. Adolfo Carit Eva that presented with stress, urge, or mixed urinary incontinence and that were undergoing electrical stimulation therapy within the time frame of January 2011 to May 2012.

A retrospective, cross-sectional study was conducted that analyzed a case series before and after treatment with electrical stimulation.

The inclusion criteria were patients diagnosed with urinary incontinence that entered the electrical stimulation program and completed the full 12 treatment sessions and whose case records contained all the information required for the study.

Results

A total of 66 patients fit the inclusion criteria of the study. The population had a mean age of 55.1 years with a 37 to 80 year range. The mean body mass index (BMI) was 29.1 kg/m², with a range of 20 to 38. Sixty-three percent of the patients had a personal pathologic history, the most frequent of which was high blood pressure in 46.96% (n=31) (table 1). In relation to the obstetric/gynecologic characteristics, the range of parity was 1 to 8; 3.03% (n=2) had 0 births; 96.96% (n=64) had one vaginal birth; 33.33% (n=22) had numerous births (4 or more vaginal births), and 3.03% (n=2) had a surgical birth with forceps. In addition, 13.63% (n=9) had one or more births by cesarean section, whereas 22.72% (n=5) of the patients had a history of one abortion.

A total of 46.96% (n=31) were post-menopausal patients with no hormone replacement therapy and 37.87% (n=25) of the patients had hormone replacement therapy. A total of 15.15% (n=10) of the patients were premenopausal.

Upon evaluating the characteristics related to incontinence, it was seen that the most frequent type was mixed incontinence, corresponding to 60.6% (n=40) of the patients, followed by stress incontinence in 34.84% (n=23), and urge incontinence in 4.54% (n=3) (fig. 1). The cough test was positive in 34.84% (n=23) of all the patients studied.

Patient distribution according to the incontinence severity index, or Sandvik index, before initiating electrical stimulation therapy was 31 patients (46.96%) in the severe category, 2 (3.03%) moderate, and 33 (50%) mild (fig. 2).
In the evaluation of pelvic floor contractility, it was found that 9.09% (n=6) of the patients were not able to do the exercise and 59.02% (n=39) had weak musculature, which was defined as an Oxford score of 1 and 2 (table 2).

In relation to the evaluation of the subjective improvement of the total group of patients, there was a change from 0 in the first determination with a tendency to increase up to 8.0 in the twelfth evaluation. The determinations showed significant changes from the sixth week, regarding a score equal to or higher than 6 as an obvious change; likewise, a maximum improvement of 8 points on the visual analog scale in subjective improvement was identified at the twelfth week (fig.3).

The subjective improvement of the patients that presented with urinary incontinence is detailed according to the type of disorder. The mean results of the subjective improvement obtained in each consultation are presented through the visual analog scale (fig. 4).

A total of 81.81% (n=54) of the patients presented with significant improvement according to the visual analog scale.

The domains of health perception, the impact of incontinence, role limitation, physical limitation, social limitation, personal relationships, emotions, energy and sleep, severe measures (referring to the urinary symptoms perceived by the patient), the King’s Health quality of life questionnaire for urinary incontinence, and the Sandvik scale of incontinence severity were compared. The initial distribution according to the Modified Sandvik Severity Index is shown in fig. 5.

In the King’s Health questionnaire for grading quality of life, the results are given as a percentage of how much the patient is affected. If the percentage is high it means that the impact of the involvement is high. There is no good or bad value, but rather it is understood that if the value is higher, the patient is more affected. Quality of life is an extremely subjective concept that is influenced by personal and cultural values, age, illnesses, religion, goals, interpersonal relationships, and family support.

Detailed below is the comparison of domains evaluated in the quality of life questionnaire in patients with urinary incontinence according to the type of condition. Upon evaluating the different domains according to quality of life, the mean pre and post-treatment scores of the quality of life domains in the patients with stress and mixed urinary incontinence showed significant improvement in all the domains. However, for the patients with urge incontinence there was significant improvement only in the energy and sleep domain, even though there was a tendency toward...
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Improvement in all the domains, but it did not reach statistical significance, probably due to the small size of this patient group (n=3) (tables 3, 4, and 5).

Discussion

Electrical stimulation has been shown to have a beneficial effect on the quality of life of patients with urinary incontinence in all domains of the general study of urinary incontinence. However, upon sub-categorizing urinary incontinence into types, no real difference was documented in any of the domains, except that of energy and sleep, in relation to urge incontinence.

The domain of severe measures referred to the need to manage the intake of liquids and to use hygienic protection. It should be stressed that even after patients improve, they should always follow the behavioral therapy instructions in relation to liquid intake (quantity). In regard to the use of sanitary napkins, many patients continue to fear an incontinence episode, despite there not being any, and continue to use the protection, affecting this domain despite the improvement.

There was a progressive increase in subjective improvement from week 1 up to the last session, despite

<table>
<thead>
<tr>
<th>Oxford score*</th>
<th>n</th>
<th>Percentage</th>
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<tr>
<td>0</td>
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<td>9.09</td>
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<tr>
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</tr>
<tr>
<td>2</td>
<td>25</td>
<td>37.87</td>
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<tr>
<td>3</td>
<td>20</td>
<td>30.30</td>
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<tr>
<td>4</td>
<td>1</td>
<td>1.5</td>
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* 0 = no discernible contraction; 1 = fasciculations; 2 = weak contraction; 3 = moderate contraction; 4 = strong contraction.

Source: Case records from the Hospital de las Mujeres Dr. Adolfo Carit Eva (HOMACE).
the fact that a slight progression decline was observed at session 4, specifically in the stress urinary incontinence subgroup. Even so, the final treatment result was similar among the 3 subgroups. It was to be expected that this advance took some weeks of treatment, given that the effects of muscle strengthening require a 4-6 week period in order to create changes in the pelvic floor muscle fibers.

The early improvements from the treatment were probably also due to the changes in micturition habits and the recommendations as to the intake of liquids.

It should be understood that improvement through conservative therapies is not expected to reach a 100% cure, but rather subjective improvement of 8 or higher on the visual analog scale is regarded as significant, or the fact that the patient can carry out her daily activities without being interrupted by the effects of incontinence.

As was observed at the end of this study, 81.81% of the patients had significant improvement, compared with the 50% reported in the international medical literature. The high improvement percentage can be justified by adequate treatment adherence on the part of the patients, and mainly the treatment regimen; in other words, the time interval between sessions was better adapted to the daily routine of the patients, as well as continuous education of the patient as to what to expect from the procedure.

In the subgroup of patients treated for urge and mixed urinary incontinence with predominating urge symptoms, there was a factor that induced bias; 50% (n=15) of those patients were treated concomitantly with anticholinergic pharmaceutical therapy, making it impossible to concretely deduce that improvement depended solely on the electrical stimulation therapy. When the group was subdivided in relation to the use of anticholinergic treatment, the
patients treated with medication tended to present with earlier changes and subjective improvement. Nevertheless, by the seventh week, both the patients with and without drug therapy tended to present with similar improvement, and this relation was maintained up to the end of the treatment. Given the type of study conducted, it is not possible to explain whether this behavior was due to the fact that both treatments are equivalent, and therefore the suspension of pharmacologic treatment would be recommended when receiving electrical stimulation, or in treating more severely affected patients, the combined use of two therapies, strengthening both, to achieve favorable results.

A total of 69.69% (n=46) of the group had a deficient/weak pelvic floor, defined as values of 2 or less on the Oxford contractility scale. This type of patient tends toward the target group in conservative therapies that involve pelvic floor rehabilitation. Future studies should be considered that evaluate muscle strength and coordination as the final study result.

The patient should always be educated with respect to the changes in lifestyle that the modifiable disease factors represent.

Conclusions

Electrical stimulation therapy was shown to have a beneficial impact on the quality of life of patients with stress, urge, and mixed urinary incontinence. The benefit of significant improvement in the quality of life of the patients was identified in all the evaluated domains in general, finding differences when incontinence was subcategorized, given that the urge urinary incontinence type only showed improvement in the energy and sleep domain. However, a tendency toward improvement in all the domains was seen in this type, but there was no statistical significance, probably due to the small size of the subgroup (n=3). Considering conservative therapy through electrical stimulation as an alternative to surgery is recommended in patients with a weak pelvic floor or in those that do not wish to undergo surgery.

Conflict of interest

The authors state that there is no conflict of interest.

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References


