

**ABSTRACT TITLE:**

**APPROACH TO THE TREATMENT OF URINARY STRESS INCONTINENCE WITH CO<sub>2</sub> VAGINAL LASER**

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**ABSTRACT TEXT:**

**Hypothesis / aims of study**

According to the international consensus, the first approach for the treatment of US/SUI should be conservative (1). The objectives of conservative treatment of SUI have focused on the recovery of function and normal control of bladder and pelvic floor muscles (electrostimulation, bio-feedback, PFMT, etc.).

The aim of this study is to determine the effectiveness of CO<sub>2</sub> laser as an adjuvant to conservative treatment of patients complaining of SUI.

**Study design, materials and methods**

Pre-experimental design, case series. Level of evidence III – Grade B.

This is a preliminary study including 24 patients with SUI/USI to which detailed history, complete urodynamic study and 8-week follow-up were performed. Patients underwent two sessions of treatment by CO<sub>2</sub> Laser Vaginal (Gynelase®, INTERmedic®) at the anterior wall of the vagina (150 degrees). The parameters used in each single pass were pulse=80mJ/dot, energy=0.8 microseconds and density=70%. The second session was performed in all cases four weeks after the first session. Follow-up was made after three weeks of each session and eight weeks after stopping treatment. All patients completed the ICIQ-SF and PISQ12 questionnaires four times (before treatment, after three weeks of the first session, after three weeks of the second session and at 8-week follow-up). Patients age below 18 years, diagnosed with neurogenic bladder, acute urinary tract infection, urinary tract malformation and bladder organic pathology, congenital urogynaecological malformations, bladder organic pathology, treatment affecting the vesicoesfinterian dynamic, pelvic radiotherapy, treatment with estrogen or other drug during the three months prior to the intervention were excluded from the study. All patients signed an informed consent before inclusion in the study, as established by the Declaration of Helsinki.

Statistical analysis of data was performed using SPSS 21.0 for Windows. The statistical methods used were descriptive statistics for quantitative variables (procedure DESCRIPTIVE) and descriptive statistics for qualitative variables (FREQUENCIES procedure), paired t-student for independent measures for comparing two means, Chi-square test for the relationship between qualitative variables (procedure NPAR-test). Results in which the association has submitted a statistical significance level less than 1% ( $p \leq 0.001$ ) and trends, with a lower level of significance of 5% ( $p \leq 0.05$ ) are shown.

## **Results**

The mean ages was 48.6 years (range 31-79) and mean parity was 0.5 (range 0 to 3). All patients complained of SUI, 12 patients (50%) of vaginal dryness and 22 patients (91.7%) of vaginal laxity. On urodynamics testing, USI was diagnosed in 100% of the cases, no detrusor overactivity neither voiding dysfunction. After the first session, 58.3% of patients were reported SUI/USI, 8.3% of vaginal dryness and 25% of vaginal laxity. After the second session, 83.3% of patients reported improvement in SUI ( $P=0.001$ ). Regarding vaginal lubrication and vaginal laxity improvement was complete in 100% of patients ( $P<0.0001$ ). A statistically significant improvement in the ICIQ-SF after the second treatment session was also observed ( $P<0.0001$ ).

## **Interpretation of results**

Some authors have begun to explore the CO<sub>2</sub> laser treatment for vaginal laxity and found, by chance, improvement in those patients who reported SUI. Although these studies were performed with a low number of patients seem important to convey that CO<sub>2</sub> laser treatment can be a useful tool for the treatment of SUI / USI. Experience using other types of lasers such as Ne / YAG is also minimal. Our findings make us optimistic about the use of CO<sub>2</sub> laser as treatment either alone or as an adjuvant of physiotherapy for the treatment of SUI.

## **Concluding message**

In this preliminary study, we observed that treatment with CO<sub>2</sub> laser is highly effective for the treatment of SUI/USI. In addition, we found a significant improvement in all those patients who reported vaginal laxity.