Journal of Integrative and Complementary Medicine: http://mc.manuscriptcentral.com/jaltcompmed

EFFECTIVENESS OF RADIOFREQUENCY IN PRIMARY DYSMENORRHEA: A RANDOMIZED CONTROLLED TRIAL

Journal:	*Journal of Integrative and Complementary Medicine*
Manuscript ID	Draft
Manuscript Type:	Original Article
Date Submitted by the Author:	n/a
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Keywords:	physical therapy, randomized clinical trials, women's health, therapeutics
Manuscript Keywords (Search Terms):	Diathermy, Physiotherapy modalities, Primary dysmenorrhea, Radiofrequency
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	dysmenorrhea. Methods: A randomized, single-blind controlled trial was conducted. Forty-five nulliparous women with a medical diagnosis of primary dysmenorrhea were included. Participants were randomly assigned to a transabdominal radiofrequency group, an intracavitary radiofrequency group, or a control group. The intervention groups received nine 20-minute sessions, with three sessions per week over three weeks between menstrual cycles. Pain intensity, menstrual quality of life, general quality of life, and pain pressure thresholds were assessed before the intervention, immediately after, and one-month post-intervention. Results: Both transabdominal and intracavitary radiofrequency significantly reduced pain intensity compared to the control group ($p<0.001$). Intracavitary radiofrequency achieved a greater reduction than transabdominal, though the difference was not statistically significant ($p=0.311$). Mechanical sensitivity showed no significant differences between groups ($p>0.05$) across all pressure points. Regarding quality of life, intracavitary radiofrequency significantly improved menstrual quality of life compared to the control group ($p=0.023$), while transabdominal radiofrequency did not ($p=0.176$). Differences in general quality of life were not statistically significant in any group ($p>0.05$). Conclusion: Adding transabdominal and intracavitary radiofrequency to prescribed medical treatment leads to short-term improvements in pain intensity in patients with primary dysmenorrhea, with no significant differences between the two approaches. This allows for personalized treatment based on patient comfort and preference.

EFFECTIVENESS OF RADIOFREQUENCY IN PRIMARY DYSMENORRHEA: A RANDOMIZED CONTROLLED TRIAL

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Word account: 2.658 words

Number of figures: 3

Number of tables: 3

What does this study add to the clinical work: Transabdominal or intracavitary radiofrequency results in significant reductions in pain intensity for primary dysmenorrhea.

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ABSTRACT

Introduction: Non-invasive, non-ablative Transfer Electrical Capacitive and Resistive (TECAR) radiofrequency has emerged as a therapeutic tool for managing pelvic pain conditions. However, research on its efficacy in pelvic floor dysfunctions remains limited. This study aimed to assess the effectiveness of TECAR radiofrequency therapy in primary dysmenorrhea.

Methods: A randomized, single-blind controlled trial was conducted. Forty-five nulliparous women with a medical diagnosis of primary dysmenorrhea were included. Participants were randomly assigned to a transabdominal radiofrequency group, an intracavitary radiofrequency group, or a control group. The intervention groups received nine 20-minute sessions, with three sessions per week over three weeks between menstrual cycles. Pain intensity, menstrual quality of life, general quality of life, and pain pressure thresholds were assessed before the intervention, immediately after, and one-month post-intervention.

Results: Both transabdominal and intracavitary radiofrequency significantly reduced pain intensity compared to the control group ($p<0.001$). Intracavitary radiofrequency achieved a greater reduction than transabdominal, though the difference was not statistically significant ($p=0.311$). Mechanical sensitivity showed no significant differences between groups ($p>0.05$) across all pressure points. Regarding quality of life, intracavitary radiofrequency significantly improved menstrual quality of life compared to the control group ($p=0.023$), while

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Conclusion: Adding transabdominal and intracavitary radiofrequency to prescribed medical treatment leads to short-term improvements in pain intensity in patients with primary dysmenorrhea, with no significant differences between the two approaches. This allows for personalized treatment based on patient comfort and preference.

Keywords: Diathermy; Physiotherapy modalities; Primary dysmenorrhea; Radiofrequency.

Article Type: Research report

Trial Registration number: NCT06200506 (Date: 8 August 2024)

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INTRODUCTION

Primary dysmenorrhea is a gynecological condition characterized by menstrual pain [1] in the absence of organic pathology (Fernández-Martínez et al, 2022; Fernández-Martínez, Onieva-Zafra, and Parra-Fernández, 2018;Karout et al, 2021). The main symptom is pelvic and/or abdominal pain, which may radiate to the lumbar region or lower extremities [5]. This condition negatively impacts quality of life, academic or work performance, and social well-being [1, 4, 6]. The global prevalence of primary dysmenorrhea ranges from 13% and 95% [4–6] with 2-29% of women experiencing severe pain.

Diagnosis is made by excluding other pathologies that could cause menstrual pain. However, a significant number of women do not seek gynaecological consultation for appropriate diagnosis and treatment, [4, 6] often resorting to self-medication [7].

Currently, menstrual pain is primarily managed pharmacologically. Due to increasing demand from women seeking alternatives, interest in non-pharmacological treatments has grown [3]. Various clinical trials [1, 5, 8–14] have analyzed the efficacy of non-pharmacological interventions in primary dysmenorrhea [15–18].

One emerging technique in clinical practice is non-ablative radiofrequency or diathermy. Transfer Electrical Capacitive and Resistive (TECAR) radiofrequency therapy generates high-frequency waves, typically ranging from 0.8 to 1.5 MHz (Kumaran & Watson, 2015; Rodríguez Sanz et al., 2022). Although its applications in different body regions have been tested (Beltrame et al, 2020;Carralero-Martínez et al, 2022; González-Gutiérrez et al, 2022; Li et al, 2024), no

studies have specifically evaluated its effectiveness in primary dysmenorrhea. Therefore, this study aims to determine the efficacy of radiofrequency in the treatment of primary dysmenorrhea.

MATERIALS AND METHODS

Study design

A randomized and single-blinded controlled clinical trial was conducted to compare the effects of nine sessions of transabdominal radiofrequency, intracavitary radiofrequency or "wait and see" in patients with primary dysmenorrhea. This clinical Trial was conducted in the Physiotherapy wards of the Faculty of Nursing, Physiotherapy, and Podiatry at the Complutense University of Madrid between January and July 2024. The study was evaluated and approved by the Ethics Committee of the San Carlos Clinical Hospital with internal code 22/006-EC_P and was registered in Clinical Trials with registration number NCT06200506. The clinical trial was carried out following the guidelines of the CONsolidated Standards Of Reporting Trials (CONSORT) 2010 statement [25] and the Enhancing the QUAlity and Transparency Of health Research (EQUATOR) guidelines for improving the quality and transparency of health research.[26]

Participants

Fifty-two women diagnosed with primary dysmenorrhea who had experienced menstrual pain in most cycles over the past year were recruited. Eligibility criteria included being 18-35 years old, nulliparous, and having regular menstrual cycles, [27] with pain during menstruation or the 48 hours preceding it.

Exclusion criteria included the use of hormonal intrauterine devices, recent abdominal or pelvic surgery, secondary dysmenorrhea, pregnancy, recent physiotherapy treatment for menstrual

pain, or contraindications to diathermy (e.g., metallic implants, uncontrolled cancer, active infections, fever, or skin wounds).

Data collection started on 20 May 2024 and was completed on 20 July 2024. Participants were not involved in the design, conduct, reporting or dissemination plans of our research.

Randomization and masking

Participants were randomly assigned to transabdominal radiofrequency, intracavitary radiofrequency or control group using a pre-generated randomization table developed specifically for this study(Kim and Shin, 2014). Allocation was concealed using sequentially numbered, opaque sealed envelopes. One researcher, not involved in evaluation or intervention, conducted the random assignment. Patients were blinded to their assigned intervention.

Interventions

Each group continued with their prescribed medical-pharmacological regimen provided by their family physician. Intervention groups (transabdominal and intracavitary modalities) received 9 sessions of 20 minutes each, three times per week over three weeks between menstrual cycles while the control group followed standard medical management. A TECAR therapy device (Capenergy Urogyne CM500, by capener medical, S.L.) designed for Uro-Gynecological Physiotherapy was used.

The transabdominal radiofrequency group received treatment with an active electrode placed over the suprapubic and infraumbilical area (**Figure 1 A**), and a passive plate positioned at the sacral level. Both plates were secured with a standard strap. The intracavitary radiofrequency group received vaginal RF application using a probe manipulated by the physiotherapist (**Figure 1B**), with the passive plate at the sacral level.

[Figure 1A and Figure 1B]

Outcomes

Assessments were conducted at baseline, immediately post-intervention, and one-month post-intervention. The baseline assessment took place after the end of menstrual bleeding. The first post-intervention assessment was performed immediately after the completion of treatment and the first subsequent menstrual bleeding, while the second post-intervention assessment followed the second menstrual bleeding. Each of the three assessments was carried out by an investigator blinded to the intervention and patient randomization.

Prior to the follow-up assessments, patients were contacted by phone. If they confirmed their willingness to participate, they were scheduled for an in-person interview at the physiotherapy rooms of the Department in the days following the end of their menstrual bleeding. During this interview, participants were provided with a physical copy of the information sheet, informed consent form, and confidentiality/privacy agreement.

At baseline, a standardized medical history was collected, including sociodemographic data and prescribed pharmacological treatments. Additionally, pain intensity, menstrual quality of life, general quality of life, and pain pressure thresholds in the pelvic region were measured.

Pain was considered the primary outcome variable. The Numeric Pain Rating Scale (NPRS) was utilized to subjectively assess pain intensity, as supported by several systematic reviews for clinical and research settings [29, 30]. Women were asked to graphically indicate their pain intensity during menstruation on a segmented, numbered scale from 1 to 10, where “0” represented no pain and “10” indicated the worst possible pain (Farrar et al, 2001). Scores below 3.4 were classified as mild pain, scores between 3.5 and 6.4 as moderate pain, and scores above 6.5 as severe pain [32].

Secondary outcome variables included quality of life during menstruation, general quality of life and pelvic pressure pain thresholds.

Menstrual quality of life was assessed using the previously validated Spanish version of the CVM-22 questionnaire. This questionnaire scores between 0 and 66 points, with higher scores indicating worse menstrual quality of life [33]. On the other hand, general quality of life was evaluated using the SF-12 health questionnaire.[34].

To assess deep muscular tissue sensitivity, pressure pain thresholds (PPTs) were measured. This test determines the amount of pressure applied to a specific area at which a steadily increasing, non-painful pressure stimulus turns into a painful sensation. A varying pressure of 0.5 to 1 kg/sec was applied perpendicularly to the muscle. Assessments were conducted at three points in the typical painful locations described in a previous study[35, 36]: one in the suprapubic area and two at the reference points of the right and left internal oblique muscles, located one centimetre inward from the right and left anterosuperior iliac spine. These measurements were recorded using a digital algometer Commander by Jtech Medical.

Sample size calculation

To estimate the effect size for the sample size calculation, a pilot trial was conducted with 15 participants (5 per group). Following the completion of the pilot study, the minimum sample size required for this study was calculated using G*POWER software (version 3.1.9.7).

For this calculation, a repeat measure MANOVA was employed. In the a priori analysis, we specified 3 groups and 3 measurements, an effect size of f(V)=0.4f(V)=0.4, a two-tailed significance level (α) of 0.05, and a desired power level of 80% (β = 0.20). This analysis indicated that a total sample size of 40 participants would be necessary. To account for potential attrition

due to the longitudinal nature of the study, an additional 10% was added to the sample size to mitigate participant dropouts.

Statistical analysis

All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 25 (IBM Corporation, Armonk, NY, USA), with a significance level set at $p<0.05$. Data normality was verified prior to analysis, and descriptive statistics were used to summarize the data. Normally distributed data were presented as means, standard deviations (SD), and 95% confidence intervals (CI). Between-group comparability at baseline was assessed using a multivariate lineal general model for continuous variables.

Since an analysis of covariance (ANCOVA) using baseline values as covariates has been shown to be more powerful than repeated-measures analysis of variance (RM ANOVA) when random group assignment is used[37], a general linear model was employed for evaluating the effects of the interventions. A 3×3 mixed-design ANOVA was applied, with time (pre-intervention, post-intervention, and follow-up) as the within-subjects factor and group (control group, transabdominal radiofrequency group and intracavitary radiofrequency group) as the between-subjects factor. Interaction effects (group*time) were assessed to determine if the groups changed differently over time.

Given the presence of multiple primary outcomes, a Bonferroni correction was applied to adjust the significance level. For group comparisons, the significance threshold was set at $p<0.016$ (0.05/3), and for time effects at $p<0.016$ (0.05/3). The group-by-time interaction was adjusted to $p<0.0083$ (0.05/6). Post-hoc pairwise comparisons were conducted to explore specific differences between and within groups when interaction effects were significant [38].

Effect sizes were calculated using partial eta squared (ηp^2) to quantify the magnitude of differences. Values of ηp^2=0.01 were interpreted as small, ηp^2=0.06 as medium, and ηp^2=0.14 as large [39].

RESULTS

Initially, 52 individuals were assessed for eligibility. Of these, 7 were excluded (6 for not meeting the selection criteria and 1 for declining participation). No additional reasons for exclusion were reported. This resulted in 45 participants being randomized into one of three groups, with 15 participants assigned to each. There were no losses to follow-up, no intervention interruptions, and no participants excluded from the analysis. **Figure 2** illustrates the process of participant selection, randomization, and analysis of the three study groups.

[Figure 2]

Baseline sociodemographic and clinical characteristics of the three groups **(Table 1)** showed no significant differences, supporting their comparability in sociodemographic terms. Similarly, no significant differences were observed in clinical characteristics at baseline (all, $p>0.016$).

[Table 1]

Tables 2 and 3 present the results of the general linear model analysis for pain intensity, pressure pain thresholds, menstrual quality of life, and general quality of life as measured by the SF-12 physical and mental domains, summarizing the ANOVA interaction effects (**Table 2**) and providing pairwise comparisons between the three groups post-intervention and at follow-up (**Table 3**).

[Table 2 and Table 3]

Regarding pain intensity, a significant group-by-time interaction effect was found ($p<0.001$), indicating that pain intensity evolved differently across groups over time. Pairwise comparisons revealed significant post-intervention reductions in pain for the transabdominal radiofrequency group compared to the control group ($p=0.011$) and for the intracavitary radiofrequency group compared to the control ($p<0.001$). At follow-up, both the transabdominal ($p<0.001$) and intracavitary radiofrequency groups ($p<0.001$) maintained significantly lower pain levels than the control, demonstrating sustained pain reduction in both radiofrequency groups.

For pressure pain thresholds, no significant group-by-time interaction effects were detected after adjusting the significance level to 0.0083. The interaction effect for PPT1 was non-significant ($p=0.959$), indicating consistent PPT1 values across all groups. Pairwise comparisons showed no significant differences between groups post-intervention or at follow-up ($p>0.05$) for PPT SP, PPT IO-R ($p=0.950$), and PPT IO-L ($p=0.886$), with similar results across all time points.

Regarding menstrual quality of life, there was a trend toward a group-by-time interaction effect ($p=0.026$), though it did not reach the adjusted significance threshold of 0.0083. However, pairwise comparisons at follow-up revealed a significant improvement in the intracavitary radiofrequency group compared to the control ($p=0.023$), suggesting greater enhancement in menstrual quality of life for this group.

For general quality of life as measured by the SF-12 physical domain, the group-by-time interaction effect was not significant ($p=0.941$), indicating no substantial differences in physical quality of life changes among the groups over time. Pairwise comparisons showed no significant differences post-intervention or at follow-up. Similarly, for the SF-12 mental domain, neither the group-by-time interaction ($p=0.543$) nor the pairwise comparisons ($p>0.05$) revealed significant differences between groups over time.

DISCUSSION

This trial is the first to evaluate the efficacy of radiofrequency therapy for menstrual pain. To date, only one clinical trial has examined the use of radiofrequency for chronic pelvic pain syndrome, yielding favourable results similar to ours [23]. Following the intervention, both groups experienced a 2.7-point decrease in NPRS scores. One month later, the transabdominal group showed a 3.7-point reduction, while the intracavitary group exhibited a more pronounced decrease of 4.3 points from baseline.

The most relevant results obtained in this study need to be analyze separately, first discussing the TECAR effectiveness versus prescribed medical-pharmacological regimen for improving pain intensity, mechanical sensitivity, and quality of life and secondly comparing the efficacy of transabdominal and intracavitary modalities.

Regarding pain reduction, both radiofrequency techniques demonstrated significant improvements compared to the control group. However, intracavitary radiofrequency resulted in a more pronounced and sustained decrease in pain over time compared to the transabdominal approach. In terms of mechanical sensitivity, changes were less consistent across the different pressure points assessed. While there were trends of improvement in the intervention groups, these did not always reach statistical significance when compared to the control group. Concerning quality of life, both radiofrequency methods led to improvements in the evaluated indicators, with a more notable impact on certain functional and emotional aspects compared to the control group.

When comparing the efficacy of intracavitary versus transabdominal radiofrequency, the intracavitary approach tended to provide greater benefits in pain reduction and some aspects of quality of life. However, the differences between the two techniques were not always significant

across all analyzed variables, suggesting that both methods can be effective, with potential advantages depending on the type of application.

Since limited evidence is available analyzing the TECAR effectiveness for this clinical condition, a direct comparison between our results with previous research is not possible. However, an indirect comparison of pain intensity, mechanical sensitivity, and quality of life effects with previous research for other pelvic floor disorders may be of interest. For instance, the latest systematic review on radiofrequency [24] includes only two studies where pain intensity was the primary symptom: one on postpartum perineal pain [40] and another on dyspareunia [41]. Unlike our findings, these studies did not report significant improvements in pain intensity with radiofrequency treatment. However, the same review includes a prospective study on pelvic pain that documented a 3.52-point improvement on the VAS scale [42]

Limitations

Although the findings of this study are promising for the application of radiofrequency in primary dysmenorrhea, certain limitations should be acknowledged. First, the nature of the treatment does not allow for double-blinded masking. Second, primary dysmenorrhea has a multifactorial aetiology influenced by numerous lifestyle factors that are difficult to control within the study framework. Finally, only short-term follow-up was conducted. Future research is needed to determine whether the observed short-term benefits persist over time and whether radiofrequency therapy could contribute to a reduction in the use of analgesic and anti-inflammatory medications.

CONCLUSION

The findings of our study suggest that incorporating either transabdominal or intracavitary radiofrequency for the treatment of primary dysmenorrhea results in significant short-term reductions in pain intensity, with no notable differences between the two interventions. Regarding menstrual quality of life, only the intracavitary group showed a significant improvement. However, no differences were observed between groups in general quality of life or pelvic region pain pressure thresholds.

Authors' Contributions: *Beatriz García-García:* Protocol/project development. Data collection or management. *María José Díaz-Arribas:* Protocol/project development. Manuscript writing/editing. *María Alicia Urraca-Gesto:* Protocol/project development. Data collection or management. *Juan Antonio Valera-Calero:* Data analysis. Validation. *Rosa María Ortiz-Gutiérrez:* Data analysis. Supervision. *Gustavo Plaza-Manzano:* Protocol/project development. Manuscript writing/editing.

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DISCLOSURES

Funding: The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Competing interest: The authors have no relevant financial or non-financial interests to disclose.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by Research Ethics Committee of San Carlos Clinical Hospital with (ID: 22/006-EC_P).

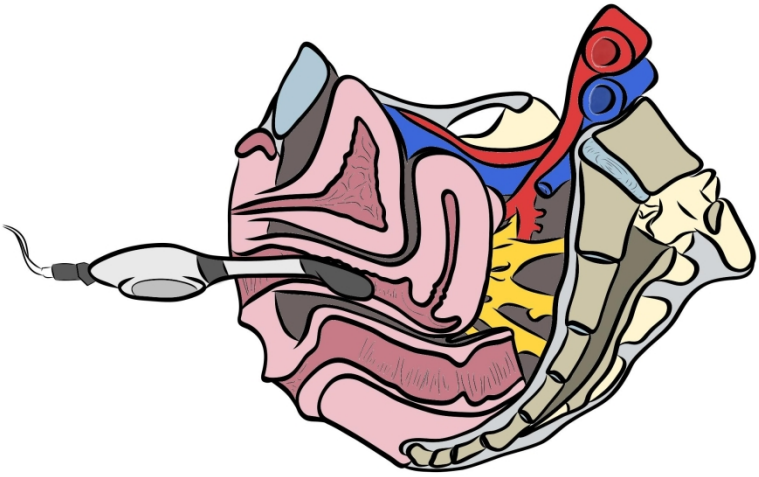
Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data availability: The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Patient and Public Involvement Statement: Participants were not involved in the design, conduct, reporting or dissemination plans of our research.

Transabdominal radiofrequency application

1276x848mm (72 x 72 DPI)



B

Intracavitary vaginal radiofrequency application

963x722mm (72 x 72 DPI)

Figure 2. Flow Chart showing study design.

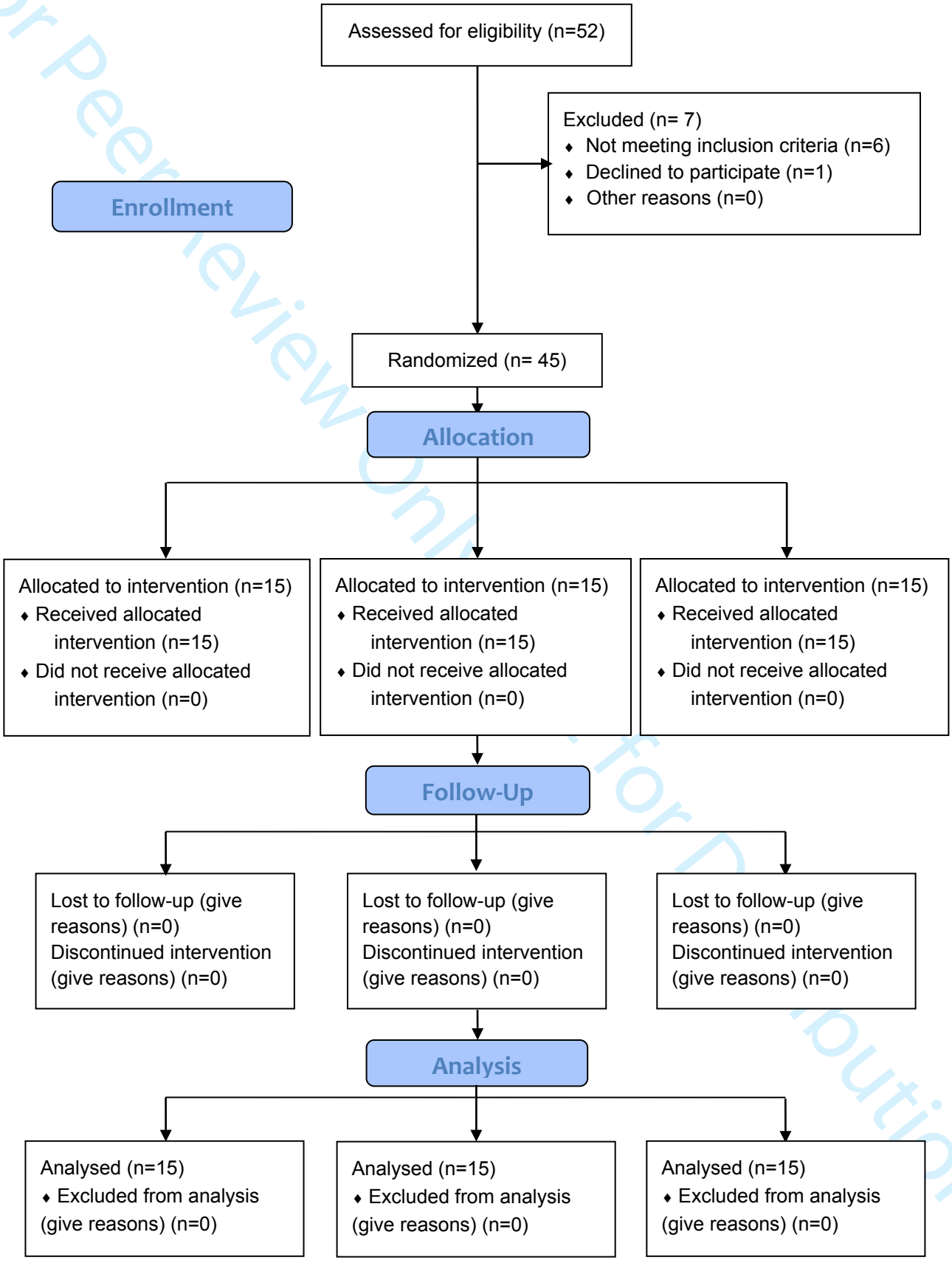


Figure captions

- Figure 1A: Transabdominal radiofrequency application.
- Figure 1B: Intracavitary vaginal radiofrequency application.
- Figure 2. Flow Chart showing study design.

Table 1. Baseline sociodemographic characteristics of the sample described by intervention groups.

	Control Group (n=15)	Transabdominal Radiofrequency (n=15)	Intracavitary Radiofrequency (n=15)	Between-Group Differences
Demographic Characteristics				
Age	28.0 ± 5.8	22.6 ± 4.4	25.8 ± 5.5	F=3.945; P=0.027
Height	1.67 ± 0.07	1.63 ± 0.06	1.64 ± 0.07	F=0.901; P=0.414
Weight	57.2 ± 6.5	57.1 ± 5.9	58.0 ± 8.0	F=0.082; P=0.922
BMI	20.5 ± 2.4	21.3 ± 2.2	21.3 ± 2.1	F=0.626; P=0.540
Clinical Characteristics				
NPRS (0-10)	7.2 ± 1.5	7.6 ± 1.4	6.9 ± 1.4	F=0.726; P=0.490
PPT SP (kg/cm^2)	22.2 ± 5.8	22.9 ± 5.1	22.4 ± 7.1	F=0.053; P=0.945
PPT IO-R (kg/cm^2)	24.2 ± 7.8	25.3 ± 6.1	24.3 ± 10.6	F=0.077; P=0.926
PPT IO-L (kg/cm^2)	22.6 ± 5.7	26.7 ± 6.2	21.6 ± 7.7	F=0.369; P=0.694
CVM	39.1 ± 8.4	44.0 ± 5.6	40.6 ± 7.0	F=1.887; P=0.164
SF-12 PD	48.8 ± 8.4	50.4 ± 5.4	50.3 ± 5.5	F=0.268; P=0.766
SF-12 MD	47.3 ± 7.7	44.5 ± 8.8	46.6 ± 10.8	F=0.395; P=0.676

Abbreviatures: BMI: Body Mass Index; NPRS: Numerical Pain Rating Scale; PPT SP: Pressure Pain Threshold Supra Pubic; PPT IO-R: Pressure Pain Threshold Internal Oblique-Right; PPT IO-L: Pressure Pain Threshold Internal Oblique-Left; CVM: Quality of Live in Menstruation; SF-12 PD: SF-12 Physical Dimension; SF-12 MD: SF-12 Mental Dimension.

Table 2. Differential analyses between groups for pain intensity, quality of life and mechanosensitivity.

	Control Group (n=15)			Transabdominal Radiofrequency (n=15)			Intracavitary Radiofrequency (n=15)			Between-Group Differences		
	Baseline	Post-intervention	Follow-up	Baseline	Post-intervention	Follow-up	Baseline	Post-intervention	Follow-up	Group*Time	Group	Time
Pain Intensity												
NPRS (0-10)	7.2 ± 1.5	7.2 ± 1.3	7.1 ± 1.8	7.6 ± 1.4	4.9 ± 2.3	3.9 ± 2.1	6.9 ± 1.4	4.2 ± 2.3	2.6 ± 1.9	F=6.227 η_p^2=0.290 P<0.001	F=23.676 η_p^2=0.276 P<0.001	F=25.372 η_p^2=0.290 P<0.001
PPT												
PPT SP (kg/cm²)	22.2 ± 5.8	22.4 ± 5.6	21.8 ± 5.2	22.9 ± 5.1	25.4 ± 6.2	24.6 ± 4.9	22.4 ± 7.1	23.5 ± 7.5	22.8 ± 7.3	F=0.157 η_p^2= 0.005 P=0.959	F=1.378 η_p^2=0.022 P=0.256	F=0.468 η_p^2=0.007 P=0.627
PPT IO-R (kg/cm²)	24.2 ± 7.8	23.9 ± 7.8	24.5 ± 7.4	25.3 ± 6.1	28.3 ± 7.8	28.4 ± 7.3	24.3 ± 10.6	26.3 ± 10.2	26.7 ± 8.6	F=0.176 η_p^2=0.006 P=0.950	F=1.547 η_p^2=0.024 P=0.217	F=0.661 η_p^2=0.011 P=0.518
PPT IO-L (kg/cm²)	22.6 ± 5.7	22.6 ± 5.8	22.3 ± 5.1	26.7 ± 6.2	27.0 ± 9.6	26.2 ± 6.6	21.6 ± 7.7	23.1 ± 7.8	23.6 ± 7.5	F=0.287 η_p^2=0.009 P=0.886	F=2.889 η_p^2=0.045 P=0.059	F=0.683 η_p^2=0.011 P=0.507
Quality of life												
CVM	39.1 ± 8.4	36.6 ± 7.8	35.7 ± 7.5	44.0 ± 5.6	32.1 ± 5.2	31.1 ± 5.6	40.6 ± 7.0	31.6 ± 5.7	29.1 ± 6.1	F=2.864 η_p^2=0.085 P=0.026	F=25.372 η_p^2=0.290 P<0.001	F=24.975 η_p^2=0.287 P<0.001
SF-12 PD	48.8 ± 8.4	49.0 ± 5.8	48.9 ± 7.7	50.4 ± 5.4	51.9 ± 6.7	52.5 ± 5.0	50.3 ± 5.5	50.6 ± 6.3	51.5 ± 6.2	F=0.194 η_p^2=0.006 P=0.941	F=2.630 η_p^2=0.041 P=0.076	F=0.764 η_p^2=0.012 P=0.468
SF-12 MD	47.3 ± 7.7	45.3 ± 9.0	49.0 ± 6.0	44.5 ± 8.8	49.6 ± 10.6	51.0 ± 7.2	46.6 ± 10.8	49.9 ± 7.2	50.9 ± 7.2	F=0.775 η_p^2=0.024 P=0.543	F=0.612 η_p^2=0.010 P=0.544	F=2.710 η_p^2=0.042 P=0.070

Abbreviatures: NPRS: Numerical Pain Rating Scale; PPT SP: Pressure Pain Threshold Supra Pubic; PPT IO-R: Pressure Pain Threshold Internal Oblique-Right; PPT IO-L: Pressure Pain Threshold Internal Oblique-Left; CVM: Quality of Live in Menstruation; SF-12 PD: SF-12 Physical Dimension; SF-12 MD: SF-12 Mental Dimension.

Table 3. Multiple Comparisons: Pairwise comparisons.

	Post-intervention			Follow-up		
	Transabdominal Radiofrequency vs Control Group	Intracavitary Radiofrequency vs Control Group	Intracavitary Radiofrequency vs Transabdominal Radiofrequency	Transabdominal Radiofrequency vs Control Group	Intracavitary Radiofrequency vs Control Group	Intracavitary Radiofrequency vs Transabdominal Radiofrequency
			Pain Intensity			
NPRS (0-10)	2.3 (0.4;4.2) p=0.011	3.0 (1.15;4.8) p<0.001	0.7 (-1.2;2.6) p=1.000	3.2 (1.5;5.1) P<0.001	4.5 (2.7;6.2) P<0.001	1.2 (-0.6;3.0) P=0.311
			PPT			
PPT SP (kg/cm^2)	3.0 (-3.0;9.0) P=0.667	1.1 (-4.8;7.1) P=1.000	1.9 (-4.2;7.9) P=1.000	2.8 (-2.7;8.3) P=0.647	1.0 (-4.4;6.4) P=1.000	1.8 (-3.7;7.3) p=1.000
PPT IO-R (kg/cm^2)	4.3 (-3.8;12.4) P=0.566	2.3 (-5.6;10.3) P=1.000	2.0 (-6.1;10.0) P=1.000	3.9 (-3.3;11.2) P=0.550	2.2 (-4.9;9.3) P=1.000	1.7 (-5.5;9.0) P=1.000
PPT IO-L (kg/cm^2)	4.4 (-2.8;11.7) P=0.404	0.5 (-6.6;7.6) P=1.000	3.9 (-3.3;11.2) P=0.550	3.9 (-2.1;10.0) P=0.340	1.3 (-4.6;7.2) P=1.000	2.6 (-3.4;8.7) P=0.858
			Quality of life			
CVM	4.5 (-1.3;10.4) P=0.183	5.0 (-0.7;10.7) P=0.109	0.5 (-5.4;6.3) P=1.000	4.7 (-1.3;10.7) P=0.176	6.6 (0.7;12.5) P=0.023	1.9 (-4.0;7.9) P=1.000
SF-12 PD	2.9 (-3.1;8.8) P=0.708	2.0 (-3.8;7.9) P=1.000	0.8 (-5.1;6.7) P=1.000	4.2 (-1.4;9.8) P=0.201	3.7 (-1.8;9.1) P=0.308	0.5 (-5.0;6.1) p=1.000
SF-12 MD	4.4 (-3.9;12.7) P=0.596	4.6 (-3.6;12.8) P=0,513	0.2 (-8.1;8.5) P=1.000	2.0 (-4.2;8.3) P=1.000	2.0 (-4.2;8.1) P=1.000	0.1 (-6.2;6.3) 0.2 P=1.000

Abbreviatures: NPRS: Numerical Pain Rating Scale; PPT SP: Pressure Pain Threshold Supra Pubic; PPT IO-R: Pressure Pain Threshold Internal Oblique-Right; PPT IO-L: Pressure Pain Threshold Internal Oblique-Left; CVM: Quality of Live in Menstruation; SF-12 PD: SF-12 Physical Dimension; SF-12 MD: SF-12 Mental Dimension.