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Original Article

Comparative analysis of copper intrauterine device impact on female sexual dysfunction subtypes

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ABSTRACT

Objectives: To examine the effect of copper intrauterine device (Cu-IUD) on female sexual dysfunction (FSD) subtypes.
Material and methods: There were 159 sexually active women (ninety Cu-IUD users and sixty-nine women with no contraception) who attended the gynecology clinic for routine gynecologic control informed about the study and asked to fill Female Sexual Function Index (FSFI) and Beck Depression Inventory questionnaires.
Results: The prevalence of FSD was 41.1% ($n = 37$) and 37.7% ($n = 26$) in Cu-IUD users and control groups, respectively ($p > 0.05$). In analyses of mean overall and subgroup scores of FSFI, significantly lower scores for arousal ($p = 0.021$), lubrication ($p = 0.021$), orgasm ($p = 0.040$), pain ($p < 0.001$), and overall FSFI ($p = 0.031$) were noted in Cu-IUD users. When the results for FSFI domains were considered for Cu-IUD users separately, the only difference to reach statistical significance, using a Bonferroni adjustment, was found to be the *pain* domain. Finally, we determined that Cu-IUD status made the strongest unique contribution to explaining the dependent variable pain in multiple logistic regression model ($\beta = -0.26$, $p = 0.001$).
Conclusion: Cu-IUD users have increased sexual pain compared to women with no contraception, which in turn possibly causes decreased sexual arousal, lubrication, and orgasm in these women.

Introduction

Long-term reversible contraception success, safety, cost-affectivity, and suitability for all reproductive ages are important factors that make copper intrauterine device (Cu-IUD) use the most commonly preferred method after sterilization [1]. According to the World Health Organization, approximately 162 million women (23% of all contraceptive users) choose IUD for contraception, especially in less developed regions [2]. However, IUD use may create some undesired side effects such as increased menstrual bleeding, intermenstrual spotting, and pelvic discomfort [3].

Female sexual dysfunction (FSD) can be divided into subtypes and are characterized by a lack of or diminished sexual feelings of interest, fantasies, and thoughts or by problems becoming aroused, lubricated, or having an orgasm although adequately stimulated, or with feelings of pain in connection with intercourse [4]. Today, satisfactory sexual habits is confirmed as one of the fundamental components of health and quality of life, but unfortunately 43% of women complain of at least one sexual problem [5]. Despite this huge rate, sexual dysfunction has not recently received much interest among the cluster of prominently investigated topics in modern gynecology.

There are few data in the literature dealing with the effects of Cu-IUD on sexual function issues. We therefore conducted this controlled study in order to address weaknesses in the information thus far available. Our primary objective was to examine the effect of Cu-IUD on FSD subtypes.

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Material and methods

This cross-sectional study was approved with the number 156/2010 by the institutional review board of Gulhane Military Academy, Ankara, Turkey. Women with Cu-IUDs, who attended our gynecology clinic from January 2012 to March 2012 for routine gynecologic control, were consecutively identified upon their presentation and were informed about the study. Inclusion criteria that women were sexually active between the ages of 20 years and 40 years; and had a monogamic and heterosexually active relationship lasting for longer than 4 weeks. The control group consisted of women with no contraception (either using traditional methods or desiring pregnancy) within the same period.

A total of 254 sexually active women, aged 20–40 years, attended our gynecology clinic during the study period, but 88 were excluded due to a history of: systemic disease ($n = 10$; hypertension, diabetes mellitus, rheumatologic pathologies, etc.), previous pelvic surgery ($n = 8$; hysterectomy, anterior–posterior and apical repair, incontinence surgery), premature menopause [6] ($n = 1$); infertility [7] ($n = 3$); and early pregnancy ($n = 2$). Twenty six women did not want to fill the questionnaire. Also excluded were five patients who had urinary or anal incontinence symptoms, were diagnosed with Grade 2 or more genital prolapsus according to POP-Q classification, cystitis, previously known urethral disorders, or interstitial cystitis due to their possible confounding effects [8]. Together with the patients with pelvic infection, pelvic congestion, or already known endometriosis ($n = 4$), the patients with vulvodynia and vaginismus ($n = 2$) were also not included in the study [8]. Moreover patients receiving oral contraceptives and therapeutics that may interfere with sexual functioning (e.g. sedatives, antidepressants and β blockers; $n = 27$) were excluded (Figure 1).

After the initial evaluation, the women who were found to be eligible for the study were instructed to fill the Female Sexual Function Index (FSFI) and the Beck Depression Inventory (BDI). The study protocol was explained, privacy assured, and voluntary participation emphasized. Written, informed consent was obtained from all volunteers. Then the women self-completed the questionnaire in a separate room allowing for sufficient privacy. One of the authors was available if additional information about the questions was requested. Seven patients (5 from that control group and 2 from the Cu-IUD users) were removed from the study due to incomplete questionnaires. Finally, the study group included 90 and the control group 69 sexually active women (Figure 1).

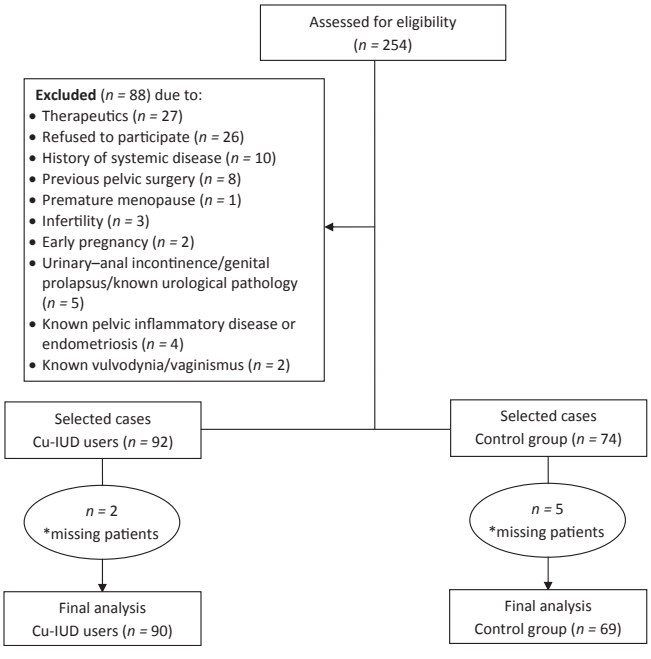

Figure 1. Flow chart of the participants in the study. *missing patients due to incompletely filled questionnaires. Cu-IUD = copper intrauterine device.

Data of each volunteer's age, partner's age, body mass index, parity, duration of marriage, smoking habits, educational status (primary, high school, university), profession, income, living habitat (city, village), Cu-IUD status, and duration of Cu-IUD were recorded. All patients' serum luteinizing hormone, follicle-stimulating hormone (FSH), thyroid stimulating hormone, free testosterone, prolactin, and estradiol levels were measured.

The FSFI is a reliable, valid, and anonymously developed questionnaire with six domains (desire, subjective arousal, lubrication, orgasm, satisfaction, pain) and 19 questions for self-reported measurement of female sexual function [9]. Each domain is assigned a minimum and a maximum score, and the total score for sexual function is determined from all domains. A score $\leq$26.5 is accepted as FSD [10]. A higher score for individual domain or a higher total score indicates better sexual functioning. The Turkish version of the FSFI has been shown to be reliable and valid for the Turkish population [11].

BDI is a 21-question multiple-choice self-report inventory that is a commonly used tool in measuring either the presence or the severity of depression [12]. Each question has a 4-point scale answer with respect to the intensity (0–3) and the total score range is 0–63. BDI was previously re-arranged for the Turkish population and the cut-off value was determined as $\geq$17 [13]. We also accepted a patient with 'depression' when she had a result $\geq$17.

The clinical features of both groups were compared, and the potential correlation between the FSFI and clinical parameters was evaluated. Parametric data of the patients were compared by independent samples t test (reported as mean ± standard deviation) and nonparametric data by χ^2 and Mann–Whitney U tests (reported as median, range). Potential correlation between patients' demographic characteristics, hormone profiles, Cu-IUD status, BDI scores, and FSFI domain scores were evaluated by Spearman rank order correlation. A one-way between groups multivariate analysis of variance was performed to investigate effect of Cu-IUD on FSFI domain scores. Multiple logistic regression analysis was used to examine the association between pain scores and independent variables. All the statistical analyses were performed using SPSS (version 22.0; SPSS Inc., Chicago, IL, USA). The level of significance was set at $p < 0.05$.

Results

Cu-IUD users and control individuals had similar mean age, partner age, body mass index, parity, and duration of marriage, and similar distribution of educational level completed, income, living habitat, employment, and smoking history (Table 1). The mean ± standard deviation duration of Cu-IUD among study group was 4.0 ± 1.8 years. In relation to hormonal status, higher levels of estradiol and FSH were determined in the Cu-IUD users (Table 2).

Although in both groups the number of women with FSD was similar, the mean FSFI scores were found to be significantly lower in Cu-IUD users than control participants. Dealing with each of the FSFI domains; arousal, lubrication, orgasm, and pain scores were significantly lower in Cu-IUD users. There was no significant difference in the mean BDI scores and the distribution of women with depression (Table 3).

The relationship between age, BDI, and FSFI domains were investigated using Spearman rank order correlation coefficient. BDI