ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

USE OF BALLOON VS INTRAUTERINE INFUSION OF PRP IN A TREATMENT FOR PATIENTS WITH INTRAUTERINE ADHESIONS AFTER HYSTEROSCOPY.

KEY WORDS: Intrauterine adhesions (IUAs), Platelet rich plasma (PRP), intrauterine balloon

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ABSTRACT

Background: This study is to evaluate the efficacy of an intrauterine infusion of platelet rich plasma (PRP) in patients with intrauterine adhesions (IUAs). **Methods:** A retrospective study was conducted from March 2020 to March 2022 to compare the efficacy of intrauterine infusion of PRP with balloon for patients with IUAs. All patients had moderate or severe IUAs, including 54 patients with intrauterine infusion of PRP (group A) and 54 patients with intrauterine balloon (group B) in the first operative hysteroscopy. American Fertility Society (AFS) score and rates of chemical pregnancy were compared. **Results:** The mean AFS scores decreased from 7.83 ± 3.10 in the first operative hysteroscopy to 2.45 ± 2.61 in the third hysteroscopy in group A. The mean AFS scores decreased from 8.29 ± 3.21 in the first operative hysteroscopy to 3.24 ± 3.39 in the third hysteroscopy in group B. The AFS score decreased with an average of 5.38 ± 3.69, and 5.21 ± 3.28, comparing the third hysteroscopy with the first operative hysteroscopy in group A and group B, respectively. **Conclusions:** There were no significant differences between the intrauterine infusion of PRP and the intrauterine balloon

INTRODUCTION

Intrauterine adhesions (IUAs) are the major cause of uterine infertility and are characterized by endometrial damage because of endometritis or curettage (1). Transcervical resection of the adhesions by hysteroscopy is the most effective and commonly used treatment method for IUAs, followed by hormonal therapy, an intrauterine device or intrauterine balloon, cross linked sodium hyaluronate, and oral antibiotics to prevent recurrent IUAs. However, high grades of IUAs mean increased risks of the spontaneous recurrence of adhesions (2).

For patients with severe IUAs, the incidence of spontaneous recurrent IUAs was reported to be 62.5%.2 Platelet-rich plasma (PRP)—which has the potential to repair tissues including tendons, muscles, cartilage, and ligament—is increasingly used in orthopedics.3 Clinical trials and retrospective cohort studies have shown that PRP is considered safe (3). PRP decreases fibroblastic activity in animal experiments (4). PRP treatment has also been applied in the treatment of hair loss, vulvar lichen sclerosis, lichen planopilaris, and other medical conditions. PRP also plays a positive role in the rejuvenation of tissue and wound healing (5). Autologous PRP could promote endometrial growth and improve endometrial regeneration and endometrial capacity. The study by Chang et al (6). observed successful endometrial growth after intrauterine infusions of PRP in all five patients who were pregnant. Endometrial repair and the prevention of recurrent IUAs are the key objectives after the hysteroscopic separation of IUAs. The aim of the present study was to evaluate the efficacy of PRP in the treatment of IUAs.

METHODS

The present study enrolled infertile women with moderate or severe IUAs. Patients with uterine malformations, endometrial polyps, submucous myomas, intrauterine hyperplasia, malignancies of the female reproductive system, premature ovarian failure, and/or endometrial tuberculosis were excluded.

According to the American Fertility Society (AFS) system,7 AFS scores of 9–12 were regarded as severe IUAs, while AFS scores of 5–8 were regarded as moderate IUAs, and AFS scores of 1–4 were regarded as slight IUAs. 108 patients with moderate (64 patients) and severe IUAs (44 patients) were initially included in the retrospective study from March 2020 to March 2022. Among these patients, 54 had intrauterine infusions of PRP (group A) and 54 patients had intrauterine balloons (group B) in the first operative hysteroscopy.

RESULTS

In the present study, 54 patients in group A and 54 patients in group B were included. None of the patients in the final analysis received blunt dissection in the second look hysteroscopy because no recurrent IUAs were found among them 1 week after the first operative hysteroscopy. No surgical complications were found. Analysing the AFS scores in the third look hysteroscopy, 10 patients in group A had an AFS score of 5 and 2 patient in group B had AFS scores of 5 and 8, respectively. Table 1 summarizes the basic characteristics of the participants.

Table 1: Basic characteristics of the participants in groups A and B.

Group	Number of Patients	Mean Age	Mean Artificial Abortion	Hypomenorrhea
A	54	34.1	1.4	54
B	54	35.4	1.3	54

The mean AFS scores decreased from 7.83 ± 3.10 in the first operative hysteroscopy to 2.45 ± 2.61 in the third hysteroscopy in group A. The mean AFS scores decreased from 8.29 ± 3.21 in the first operative hysteroscopy to 3.24 ± 3.39 in the third hysteroscopy in group B. The AFS score decreased with an average of 5.38 ± 3.69, and 5.21 ± 3.28, comparing the third hysteroscopy with the first operative hysteroscopy in group A and group B, respectively. No significant differences were found among these groups when comparing the change in AFS score. The rates of chemical pregnancy were 43.75% in group A (7 patients with positive serum β-HCG among 16 patients with transfer of embryos) and 40% in group B (8 patients with positive serum β-HCG among 20 patients with transfer of embryos).

DISCUSSION

Despite a successful initial surgery, the reformation of IUAs occurred in approximately one third of patients and the incidence of recurrent IUAs was reported to be approximately two thirds of women with severe IUAs (2). Endometrium growth is one of the most important factors in pregnancy, so the prevention of recurrent IUAs and promotion of endometrial repair are the key objectives that should be considered after hysteroscopic surgery. Barrier gels, hormonal treatment, and intrauterine balloons are usually

applied in patients with IUAs after an operative hysteroscopy (7) However, no significant or clear improvements in clinical symptoms and rates of subsequent pregnancies have been found.

PRP is defined as the plasma fraction of autologous blood with platelet numbers that are enhanced four- to six-fold compared with that of whole blood.16 There was no significant difference in the change of AFS scores among these 2 groups in the present study. Furthermore, there was no significant difference in rates of chemical pregnancy after embryo transfers among these group. PRP can play an important role in wound healing, preventing recurrent IUAs, and promoting endometrial repair. First, the fibrin and high concentrations of platelets in the PRP contribute to hemostasis and prevent acute blood loss after hysteroscopic surgery (8,9).

Early second-look hysteroscopic examinations within 2 months may improve clinical outcomes (10,11) therefore, an advanced second look hysteroscopy was carried out after the first operative hysteroscopy, and a third-look hysteroscopy was carried out in the follicular phase of the next menstrual cycle as part of routine treatment. No significant recurrent IUAs were found in the second-look hysteroscopy so none of the patients included in the final analysis received blunt dissection in the second-look hysteroscopy. Satisfactory results were achieved in the cases with a third look hysteroscopy, including results indicating endometrial repair and a normal—or almost normal— uterine cavity. Significantly decreased AFS scores were found in all groups with a third-look hysteroscopy. No surgical complications were observed in the two groups, and the intrauterine infusion of PRP is considered safe, as reported in other studies (12).

CONCLUSION

There were no significant differences between the intrauterine infusion of PRP and the intrauterine balloon. PRP is a form of treatment for IUAs after operative hysteroscopy and may be a substitute for the intrauterine balloon. However, randomized controlled trials with large sample sizes are warranted to further confirm the conclusions of the present study and to compare the efficacy of intrauterine infusions of PRP with intrauterine balloons applied immediately after transcervical resection of the adhesions by hysteroscopy in patients with IUAs.

Acknowledgement: None
Conflict of interest: None
Funding: None

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