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The Effect of Platelet-Rich Plasma (PRP) on Wound Healing in High-Risk Patients Undergoing Abdominal Hysterectomy

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ABSTRACT

Background: Hysterectomy remains one of the most commonly carried out operations in women's health, often used not only for cancer-related cases but also to treat a wide range of non-cancerous conditions such as uterine fibroids, thickened uterine lining, tissue overgrowth, uterine sagging, irregular heavy bleeding, and early cervical changes.

Objective: To examine the effect of platelet-rich plasma (PRP) on wound healing in high-risk women undergoing abdominal hysterectomy, and compare wound complications—such as infection, wound opening, and delayed healing—between PRP and control groups. It also aimed to assess PRP's impact on pain and patient satisfaction.

Patients and Methods: This randomized controlled trial enrolled 80 high-risk women undergoing abdominal hysterectomy, allocating them to either a PRP or control group. Wound healing, pain, and complications were assessed on postoperative days 1, 7, and 30.

Results: On day 7, the median pain score change from day 1 was -33.3% in the PRP group vs -15.48% in controls (p=0.006). On day 30, it was -80% in the PRP group vs 60% in controls (p<0.001). No infections were reported on days 1 or 30. On day 7, infection occurred in 10% of PRP group vs 15% of controls (p=0.499). Readmission was needed in 5% of the PRP group vs 15% in controls (p=0.263).

Conclusion: PRP appears to improve wound healing after abdominal hysterectomy in high-risk women. PRP-treated patients showed better pain and healing scores, with fewer complications, suggesting its potential as a useful aid in recovery.

Keywords: Platelet-rich plasma, Hysterectomy.

INTRODUCTION

Hysterectomy remains one of the most widely performed surgical procedures for managing a variety of uterine conditions, offering a definitive resolution of related clinical symptoms. According to available epidemiological data, its occurrence is estimated at 13.1 per 10,000 women [(1)].

The spectrum of indications for this intervention includes uterine leiomyomas (commonly referred to as fibroids), dysfunctional uterine bleeding (DUB), endometrial adenomyosis, pelvic organ prolapse, severe postpartum hemorrhage (PPH), and malignancies of the uterus. Although recent advances in minimally invasive techniques have led to increased adoption of vaginal hysterectomy (VH) and laparoscopic hysterectomy (LH), abdominal hysterectomy (AH) continues to be the most prevalently utilized method in clinical practice [(2)]. Despite its frequent use, AH is associated with a considerable risk of postoperative complications, particularly in patients identified as high-risk. In such individuals, the wound healing process tends to be more problematic and is influenced by a variety of physiological and pathological factors. These may include suboptimal tissue quality, impaired immune response, chronic systemic illnesses, and other comorbid conditions that adversely affect tissue repair [(3)].

Wound healing represents a complex physiological process essential for restoring anatomical and functional tissue integrity. Platelet-rich plasma (PRP), an autologous blood-derived concentrate rich in platelets and associated growth factors, has emerged as a potential modality to enhance tissue repair, particularly in high-risk populations [(4)]. PRP contributes to tissue regeneration by stimulating cellular proliferation, angiogenesis, and collagen synthesis, and has demonstrated efficacy across orthopedic, dental, and dermatologic applications [(5)].

Due to its elevated concentration of biologically active molecules, PRP has been documented to accelerate wound healing by approximately 30–40%, producing favorable outcomes in the management of chronic cutaneous and soft tissue wounds through the delivery of growth factors and chemokines [(6)]. Once stimulated, platelets discharge a collection of critical protein signals that guide the healing journey. These bioactive messengers—each contributing uniquely—support processes such as cell growth, tissue regeneration, and new blood vessel formation, effectively coordinating the complex stages of wound recovery [(7)].

A randomized controlled trial (RCT) done by **Tehranian *et al.*** [(8)] demonstrated that PRP use in high-risk women after cesarean section (CS) led to significantly faster wound healing and reduced pain compared to standard treatment. Similarly, **Fanning *et al.*** [(9)] investigated PRP use in patients undergoing gynecologic surgery, reporting absence of adverse events and significant analgesic benefits.

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AIM OF THE STUDY

To assess the impact of PRP on wound healing in high-risk women scheduled for AH. Research question; If PRP makes difference in wound healing in high-risk women undergoing AH?

PATIENTS AND METHODS

- **Study design**: This investigation is structured as a randomized controlled trial.
- **Study sites**: The study was conducted at the Department of Obstetrics and Gynecology, Faculty of Medicine, Helwan University.
- **Study Period:** The trial was scheduled over a one-year duration, from August 2023 to July 2024.

Study population:

Inclusion criteria: Female women older than 35 years who were undergoing AH, who exhibited at least one of the following risk factors: obesity, diabetes mellitus, chronic corticosteroid therapy, or smoking.

Exclusion criteria: Women were excluded if they present with hemoglobin (Hb) levels <10 g/dL, platelet counts <110 × 10^3/µL, coagulation disorders, current anticoagulant therapy, or a diagnosis of malignancy.

Sample size: Based on the rule of thumb for clinical trials, the sample comprised 80 participants, with 40 assigned to each group.

Sample technique: A probability sampling strategy was employed using a simple random sampling method. Women who meet inclusion criteria were recruited from the outpatient clinic at Helwan University Hospital.

Women were subjected to:

Preoperative:

A full medical history was obtained, including age, parity, gravidity, gestational age, number of previous CS, and prior uterine interventions such as myomectomy or dilation and curettage (D&C). Clinical evaluation included assessment of vital signs, cardiovascular and respiratory status. Investigations consisted of complete blood count (CBC), random blood glucose, liver and renal function panels, coagulation profile [prothrombin time (PT), partial thromboplastin time (PTT), and international normalized ratio (INR)], and virology screening. Imaging studies included pelvi-abdominal ultrasound (PAUS), transvaginal ultrasound (TVUS), and chest X-ray. Preoperative fasting protocols were observed—2 hours for clear fluids and 6 hours for light meals.

In the operating room: All data were recorded and registered.

Treated group: On the day scheduled for surgery, a total of 30 mL of venous blood was drawn from each patient into tubes that contain an anticoagulant to prevent clotting and preserve the sample for PRP preparation. This blood sample then underwent an initial centrifugation process at a speed of 1,200 revolutions per minute (rpm) for a duration of 12 minutes. This centrifugation resulted in the separation of the blood into three distinct layers: an upper layer composed mainly of plasma rich in platelets, a middle buffy coat layer enriched with leukocytes, and a lower layer consisting of erythrocytes. The upper layer and buffy coat were then carefully extracted and transferred into another sterile tube. A second centrifugation process was performed at a speed of 3,300 rpm for 7 minutes to further concentrate the platelets. This produced a soft pellet at the bottom of the tube. The pellet was then resuspended in approximately 5 mL of plasma from the bottom third, producing the final PRP solution. The resulting PRP was drawn into a sterile 3 cm^3 syringe and immediately transferred to the operating room. The prepared PRP was applied and evenly distributed over the subcutaneous tissue layer before closing the skin incision, following strict sterile technique (**Figure 1**).

Control Group: Women assigned to the control group underwent abdominal hysterectomy without the application of PRP or any other topical agent. No additional treatment was applied to the subcutaneous tissue or skin prior to wound closure.

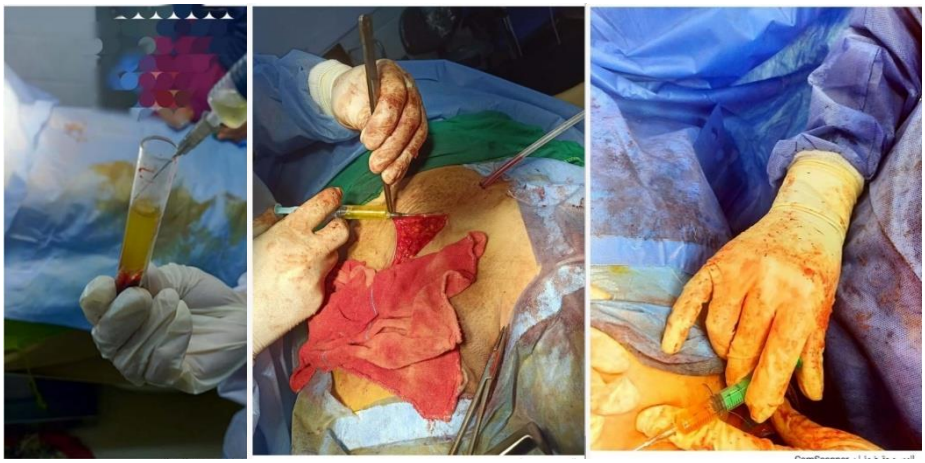


Figure (1): Application of Platelet-Rich Plasma to the Subcutaneous Tissue during Abdominal Hysterectomy.

Postoperative:

All women were clinically evaluated by the attending physician on postoperative days 1, 7, and 30. Wound healing progression was systematically assessed utilizing two validated tools: the Redness, Edema, Ecchymosis, Discharge, and Approximation (REEDA) scale and the Visual Analog Scale (VAS) for pain intensity. In addition, the incidence of wound infection and hospital readmission within 30 days postoperatively was documented. The REEDA scale is a structured categorical scoring system designed to quantify five specific indicators of wound healing—redness, edema, ecchymosis, discharge, and approximation of wound edges. Each component is scored on a scale from 0 to 3, yielding a cumulative score ranging from 0 (optimal healing) to 15 (poor healing), with lower total scores representing more favorable wound outcomes. Pain assessment was conducted using the VAS, a unidimensional, continuous measurement instrument. Patients were asked to mark their pain level along a 10-centimeter horizontal line anchored at one end by "no pain" (0) and at the opposite end by "worst imaginable pain" (10). The patient's perceived pain intensity was determined by measuring the distance in millimeters from the zero point to the marked location, with higher scores indicating more severe pain.

Primary outcome

To assess the effectiveness of PRP on wound healing in enhancing wound healing among high-risk women undergoing AH.

Secondary outcomes

To compare the rate of wound complications, such as infection, dehiscence, and delayed healing, between the PRP-treated group and the control group. To determine if PRP can reduce postoperative pain and improve patient satisfaction and 30-day readmission.

Ethical approval: The institutional ethics committee of the Faculty of Medicine, Helwan University, provided approval for this study prior to its initiation. Comprehensive explanations of the study's objectives and procedures were provided to all prospective participants. Subsequently, written informed consent was obtained from each participant, ensuring their full comprehension of the process, anticipated benefits, and potential risks. Participants retained the autonomous right to withdraw from the study at any juncture without prejudice. To safeguard participant privacy and uphold confidentiality, all collected data were coded. The entirety of the study's conduct adhered rigorously to the tenets of the Helsinki Declaration.

Statistical analysis

Data analysis was performed utilizing SPSS version 25. Qualitative data are presented as frequencies and percentages. For quantitative data, normality was assessed via the Shapiro-Wilk test. Normally distributed data are expressed as mean ± standard deviation, while non-normally distributed data are reported as median and interquartile range. The selection of appropriate statistical tests was contingent upon the data type, with the Chi-Square test being employed for categorical variables. The Kaplan curve was designated for the determination of survival rates. A statistical significance level was predefined at a p-value of ≤ 0.05.

RESULTS

Table 1 presents a comparative analysis of baseline demographic and clinical characteristics between the PRP and control groups, demonstrating a lack of statistically significant differences and thus confirming homogeneity between the cohorts regarding age, BMI, smoking status, comorbidity, and corticosteroid use.

Table (1): Comparison between the studied groups regrading baseline data

	PRP group (n=40)	**Control group (n=40)**	**t**	**p**
	Mean ± SD	**Mean ± SD**		
Age (year)	47.3 ± 5.73	47.0 ± 3.45	0.284	0.778
BMI (kg/m^2)	29.4 ± 4.89	28.6 ± 3.1	0.875	0.384
	n (%)	**n (%)**	**χ^2**	**p**
Smoking **Non-Smokers** **Smoker**	 38 (95%) 2 (5%)	 40 (100%) 0 (0%)	 Fisher	 0.494
Comorbidity **Diabetes mellitus** **Malignancy**	 13 (32.5%) 0 (0%)	 12 (30%) 0 (0%)	 0.058 -	 0.809 -
Use of corticosteroids	2 (5%)	0 (0%)	Fisher	0.494

χ2: Chi square test, t: independent sample t test

Table 2 illustrates the baseline laboratory parameters, specifically hemoglobin and platelet counts, for both the PRP and control groups. The absence of statistically significant differences underscores the comparability of the groups with respect to these crucial hematological indicators.

Table (2): Comparison between the studied groups regrading laboratory data:

	PRP group (n=40)	Control group (n=40)	t	p
	Mean ± SD	Mean ± SD		
Hemoglobin (g/dl)	11.86 ± 1.83	11.83 ± 1.11	0.081	0.936
Platelet [10^3/mm^3]	288.0 ± 77.74	292.73 ± 76.1	-0.275	0.784

t independent sample t test.

Table 3 delineates the median REEDA scale scores over time for both the PRP and control groups, revealing statistically significant improvements in wound healing, indicated by lower REEDA scores, in the PRP group at Day 1, Day 7, and Day 30 compared to the control group. The highly significant p-values for differences between time points within each group also indicate progressive wound healing.

Table (3): Comparison between the studied groups regrading REEDA scale over time:

REEDA scale	PRP group (n=40)	Control group (n=40)	Z	p
	Median (IQR)	Median (IQR)		
Day 1	2(1.5 – 3)	3(2 – 3)	-2.82	0.005*
Day 7	2(2 – 3)	5(4 – 6)	-6.013	<0.001**
Day 30	1(0 – 2.5)	2.5(2 – 3)	-5.627	<0.001**
P_1	0.498	<0.001**		
P_2	<0.001**	<0.001**		
P_3	<0.001**	<0.001**		

Z: Mann Whitney test, p1: Difference between day 1 and 7, p2: Difference between day 7 and 30, p3: Difference between day 1 and 30, *: Statistically significant, **: Statistically highly significant.

Table 4 presents the percentage change in REEDA scores between the study groups over time. It highlights a statistically highly significant improvement in wound healing, indicated by a greater negative percentage change in REEDA scores, in the PRP group compared to the control group at both Day 7 and Day 30.

Table (4): Percent change in REEDA score between study groups over time:

% change in REEDA	PRP group (n=40)	Control group (n=40)	Z	p
	Median (IQR)	Median (IQR)		
Day 7 Women	0% (0, 33.3%) 8 (20%)	66.7% (10, 150%) 5 (12.5%)	-4.016 0.827¥	<0.001** 0.363
Day 30 Women	-66.7% (-100, -33.3%) 36 (90%)	-10% (-33.3, 0%) 20 (50%)	-5.032 15.238¥	<0.001** <0.001**

Z: Mann Whitney test, ¥: Chi square test, **: Statistically highly significant.

Table 5 displays the median Visual Analog Scale (VAS) pain scores for both groups across the study period. A statistically significant reduction in pain scores was observed in the PRP group at Day 7 and Day 30 compared to the control group, suggesting a sustained analgesic effect of PRP.

Table (5): VAS pain scores over time between groups:

VAS	PRP group (n=40)	Control group (n=40)	Z	p
	Median (IQR)	Median (IQR)		
Day 1	5(5 – 6)	5(5 – 6)	-1.06	0.285
Day 7	3(3 – 4)	5.5(3.5 – 7)	-3.029	0.002*
Day 30	1(0 – 2)	2(1 – 3)	-3.751	<0.001**
P_1	<0.001**	0.713		
P_2	<0.001**	<0.001**		
P_3	<0.001**	<0.001**		

Z: Mann Whitney test, p1: Difference between day 1 and 7, p2: Difference between day 7 and 30, p3: Difference between day 1 and 30, *: Statistically significant, **: Statistically highly significant.

Table 6 provides a comparative assessment of the percentage change in VAS pain scores between the groups over time. It demonstrates a statistically significant greater reduction in pain perception in the PRP group at Day 7 and a highly statistically significant greater reduction at Day 30, reinforcing the analgesic benefits associated with PRP application.

Table (6): Comparative assessment of percentage change in VAS pain scores between groups:

% change in VAS	PRP group (n=40) Median (IQR)	Control group (n=40) Median (IQR)	Z	p
Day 7 Women	-33.3% (-50, -20%) 34 (85%)	-15.48% (-33.3, 40%) 22 (55%)	-2.766 8.571¥	0.006* 0.003*
Day 30 Women	-80% (-100, -60%) 40 (100%)	-60% (-77.5, -50%) 40 (100%)	-3.373 -	<0.001** -

Z: Mann Whitney test, ¥: Chi square test, *: Statistically significant, **: Statistically highly significant.

Table 7 details the incidence of infection at different time points for both the PRP and control groups. Importantly, no infections were reported on Day 1 or Day 30 in either group. While there was a slightly lower incidence of infection in the PRP group on Day 7 (10%) compared to controls (15%), this difference was not statistically significant.

Table (7): The incidence of infection over time:

	PRP group (n=40) N=40 (%)	Control group (n=40) N=40 (%)	χ^2	p
Day 1 **No infection**	40 (100%)	40 (100%)	-	-
Day 7 **Infection** **No infection**	4 (10%) 36 (90%)	6 (15%) 34 (85%)	0.457	0.499
Day 30 **No infection**	40 (100%)	40 (100%)	-	-

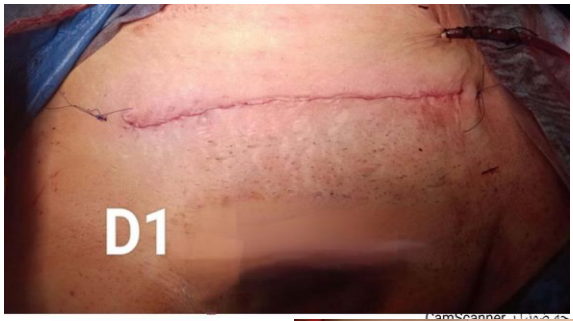
χ^2: Chi square test.

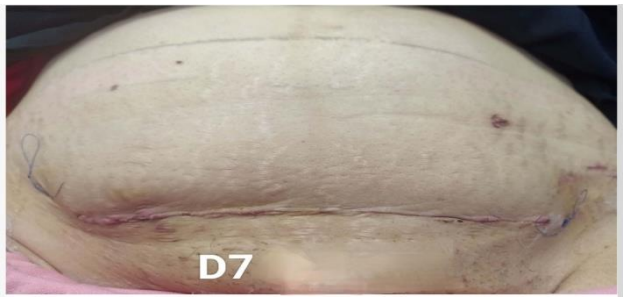
Table 8 illustrates the rate of readmission due to complications at one month postoperatively. Although the PRP group exhibited a lower readmission rate (5%) compared to the control group (15%), this difference did not reach statistical significance.

Table (8): Readmission at one month later due to complications

	PRP group (n=40) N=40 (%)	Control group (n=40) N=40 (%)	χ^2	p
Readmission				
Yes	2 (5%)	6 (15%)	Fisher	0.263
No	38 (95%)	34 (85%)		

χ^2: Chi square test.





DISCUSSION

Hysterectomy constitutes a surgical procedure undertaken to remove the uterus, either in part or in full, primarily to alleviate symptoms resulting from pathological conditions involving the uterine structure. The indications for this surgery span a wide range of gynecological conditions, including DUB, adenomyosis, genital prolapse, PPH, and uterine leiomyomas [(10)].

Hysterectomy is classified into three distinct types: partial, complete, and radical hysterectomy. A partial hysterectomy entails the removal of the uterine body while preserving the cervix, fallopian tubes, and ovaries. In contrast, a complete hysterectomy involves excision of both the uterus and cervix. The radical hysterectomy represents the most extensive approach, encompassing removal of the uterus, cervix, proximal vaginal segment, adjacent supportive tissues, and occasionally extending to the fallopian tubes, ovaries, and pelvic lymph nodes [(11)].

The intricate process of wound healing encompasses multiple critical phases vital for restoring tissue integrity and functionality. In women classified as high-risk, PRP is a promising therapeutic modality to improve the wound healing process. Rich in concentrated growth factors, PRP has been shown to stimulate collagen production, promote angiogenesis, and facilitate cellular proliferation, thereby supporting tissue regeneration and repair. Its efficacy has been documented across various clinical fields, including dermatology, dentistry, and orthopedics [(12)].

In this context, the present study was structured with two primary objectives: the first was to assess the influence of PRP on wound healing outcomes in high-risk women undergoing AH; the second was to compare the incidence of wound-related complications—including infection, wound dehiscence, and delayed healing—between women managed with PRP and those in the controls. Additionally, the study aimed to determine whether PRP application could contribute to decreased postoperative pain levels and improved patient satisfaction.

The results revealed that the mean age of the women in the PRP and control groups undergoing hysterectomy was 47.3 years and 47.0 years, respectively.

These results are consistent with a population-based analysis conducted by **Ruiz *et al.***, who examined trends in surgeon and hospital procedural volumes for hysterectomy over time and explored the link between very low surgeon procedural volume and patient outcomes. Their study included all women undergoing hysterectomy in New York State from 2000 to 2014, finding that women over 40 years old represented the largest proportion of the study population, accounting for 43.4% of cases [(13)].

In a related study, **Dhobale's research team** investigated the demographic and clinical characteristics of women undergoing abdominal hysterectomies at tertiary care centers. They reviewed clinical data from case records, including age, parity, presenting symptoms, and medical and surgical

histories. Their findings demonstrated that 54.66% of the women included in the study were above 40 years of age, with the age group 41–45 years representing the most frequently observed demographic undergoing hysterectomy. Among the surgical indications, uterine fibroids emerged as the leading cause, followed in prevalence by DUB [14].

The fact that the mean age of women undergoing hysterectomy in our research exceeds 40 years can be explained by several factors. Conditions that tend to emerge or worsen with age—such as uterine fibroids, endometriosis, and abnormal uterine bleeding—become more prevalent, increasing the likelihood of hysterectomy in this age group. Furthermore, women in their late 40s often enter perimenopause or menopause, during which hormonal fluctuations can contribute to conditions requiring surgical intervention [15].

Our study detected that the mean BMI of women undergoing hysterectomy within PRP, and control groups were 29.4 and 28.6 kg/m^2 which puts them in the overweight category.

This aligns with research conducted by **Harvey a *et al.***, who explored patterns in hysterectomy rates and influencing factors through an analysis of data from the Behavioral Risk Factor Surveillance System. Their study involved calculating basic prevalence estimates, as well as adjusted odds ratios and confidence intervals to account for multiple influencing variables—one of which was body mass index. Notably, their analysis revealed that nearly 30% of the women evaluated fell into the overweight category [16].

The rising prevalence of overweight and obesity over recent decades has contributed to increased unopposed estrogen effects in hormonally responsive tissues. Excess body fat is implicated in the development of several gynecological disorders, such as abnormal uterine bleeding and endometrial hyperplasia, which can lead to uterine enlargement and notably higher rates of endometrial carcinoma. Consequently, the indications for hysterectomy are expected to increase over time [17].

In our research, we observed a statistically significant difference between the PRP and control groups regarding REEDA scores on days 1, 7, and 30 postoperatively, with the control group demonstrating consistently higher scores over time.

This finding is proven by a RCT conducted by **Ali a *et al.***, which assessed the impact of local autologous PRP injections on episiotomy wound healing. The study included 200 primiparous women randomized into PRP and control groups. Their results showed significantly lower REEDA scores in the PRP group at weeks one, two, and four [18].

Additionally, **Wanas *et al.*** conducted a comparative analysis to assess how autologous fibrin gel and ozone-activated PRP stack up against calcium chloride-activated PRP in promoting wound repair and reducing postoperative infection risks among high-risk CS cases. The study randomized 90 high-risk pregnant women into three groups of 30 each. The group receiving ozonated PRP exhibited a significant reduction in REEDA scores on days 1 and 7 compared to the calcium chloride group [19].

In an investigation conducted by **Abd-Allah *et al.***, the efficacy of PRP in promoting wound healing and minimizing complications post-CS in obese women was evaluated. The study included 140 participants undergoing CS and demonstrated a statistically significant difference between the PRP and control groups. Although the PRP group exhibited increased erythema, edema, and wound exudate on the first postoperative day, subsequent evaluations at 1, 2, and 4 weeks revealed significantly enhanced wound healing in the PRP group, as assessed by the REEDA scale ($p < 0.0001$) [20].

The present study identified a statistically significant difference in VAS scores on days 7 and 30, with the control group exhibiting persistently higher pain scores.

Similarly, **Elkhouly *et al.*** performed a RCT involving 200 high-risk women undergoing elective CS at Menoufia University Hospital explore the impact of autologous PRP on wound recovery and pain perception. Their results revealed a notably sharper decline in pain scores in the PRP group starting from the seventh postoperative day, with this benefit persisting throughout a six-month follow-up period [21].

Furthermore, **Du *et al.*** assessed the clinical utility of PRP in managing open hand trauma with skin defects. In their comparative study of 27 female patients treated with PRP versus 31 patients who received skin flap transplantation, the PRP group reported significantly lower VAS scores (1.3 ± 1.44 vs. 2.55 ± 2.06) [22].

Liu *et al.* investigated the healing potential of autologous PRP gel in women with persistent pressure injuries. In a randomized trial involving 102 participants, those in the intervention group—receiving both negative pressure wound therapy (NPWT) and PRP gel—showed significantly lower pain scores and faster wound closure by day 21, compared to those managed with NPWT alone [23].

Additionally, **Wanas *et al.*** demonstrated a statistically significant reduction in pain, as measured by VAS, in patients treated with ozonated PRP compared to those receiving calcium chloride [19]. Conversely, **Barwijuk *et al.*** conducted a single-blind, placebo-controlled trial to assess the efficacy of intraoperative PRP application during cesarean sections. Among the 46 women equally allocated to PRP and placebo groups, no significant difference in postoperative pain levels was found [24].

Everts *et al.* evaluated the analgesic properties of a PRP product prepared from the autologous buffy coat and activated with thrombin in patients undergoing shoulder surgery, further expanding the scope of PRP's potential in surgical pain management. They reported

significant reductions in VAS scores, opioid consumption, and improved rehabilitation. The authors proposed that these effects were mediated by the activation-induced release of 5-HT. Platelets in PRP, initially in a dormant state, become activated through direct or tissue factor-mediated pathways, leading to pseudopodia formation and release of α- and dense granules, which include pain-modulating 5-HT [(12)].

Activated PRP delivers growth factors, cytokines, and lysosomal enzymes to tissues, while dense granules release substantial 5-HT concentrations. In C-PRP, platelet levels are 5–7 times higher than in peripheral blood, resulting in amplified 5-HT release. **Sprott *et al.*** noticed significant pain reduction post-acupuncture, linked to decreased platelet-derived 5-HT and elevated plasma 5-HT levels. The 5-HT system plays a dual role in modulating nociception at both central and peripheral levels, with dysregulation noted in chronic pain conditions among women [(25)].

However, contradictory findings persist regarding PRP's efficacy. **Peerbooms *et al.*** conducted research involving 102 women undergoing total knee arthroplasty, randomized into PG (n = 50) and control (n = 52) groups. The application of PG did not yield improvements in wound healing, pain reduction, functional recovery, or hemoglobin values [(26)].

The heterogeneity in PRP efficacy reported across studies may be attributed to multiple variables, including differences in PRP preparation techniques, which affect platelet and growth factor concentrations, and inconsistencies in application protocols. Study design discrepancies—such as variations in surgical procedures, wound types, and patient populations—further contribute to the divergent outcomes. Moreover, limited sample sizes in some trials may lead to underpowered analyses, potentially obscuring true effects and yielding statistically non-significant results despite clinical relevance [(27)].

CONCLUSION

The findings of our study support the efficacy of PRP in enhancing wound healing in high-risk women undergoing abdominal hysterectomy. Women treated with PRP demonstrated improved REEDA and VAS scores over time and experienced fewer wound complications compared to the control group. These results highlight the potential of PRP as a valuable therapeutic option to reduce postoperative pain and improve overall wound healing outcomes in women undergoing hysterectomy.

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