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NEW MIXTURE HERBAL OIL EFFICACY AMONG PATIENTS WITH PSORIASIS

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ABSTRACT

Psoriasis is a chronic, lifelong skin disease most commonly causing erythematous popular and scaly plaques depending on lesion type. The Aim of this study was to determine the effect of three different; topically applied; herbal mixtures for the treatment of psoriasis and evaluate the clinical efficacy and tolerability of these mixtures. This study was aimed to determine the effect of three different topically applied herbal mixtures for the treatment of psoriasis and evaluate their clinical efficacy and tolerability. Forty-eight patients with slight to severe chronic psoriasis were enrolled and randomised and divided into three subgroups (12 patients in each group utilised one of the three mixtures, while 12 patients were considered controls). The application of these mixtures reduced inflammation, relieved itching, and reduced scaly skin lesions, with mixture A having a potency of 75% and mixtures B and C having a potency of 58%. Also, the antibacterial effect of these mixtures was investigated. In conclusion, the data demonstrated that these herbal mixtures were effective in treatment.

KEYWORDS: Psoriasis, Herbal oil, Sesame oil, Olive oil, Rubia oil.

INTRODUCTION

Psoriasis is a complex condition that affects both the skin and joints. that is chronic, inflammatory, hyperproliferative, and common. The disease's natural trajectory is marked by relapses and remissions, making it highly unpredictable [(1)]. The scale itself can vary, ranging from a thick, substantial scale, commonly observed on the scalp, to no scale, typically seen in areas partially treated or located between trigonous regions [(2)]. The degree of body surface area (BSA) affected by psoriasis fluctuates, with roughly 80–85% of patients having a mild illness (i.e., affecting less than 2% of the body surface area), whereas approximately 15-20% of individuals have more severe skin involvement [(3)]. Some research has linked psoriasis to innate immune system involvement and hereditary predisposition. It has been shown that psoriasis involves pro-inflammatory cytokines such as interleukins (ILs), tumour necrosis factor (TNF), and interferon-γ (IFN-γ). Some research has connected oxidative stress to a worsening of psoriasis. Some research suggests that psoriasis may have its roots in problems with the body's antioxidant defense systems [R] [(4)]. Psoriasis may be categorised into four distinct types: plaque-type psoriasis, guttate psoriasis, localised pustular psoriasis, and generalised pustular psoriasis. Less often seen variations of psoriasis include pustular forms, both localised and generalised, as well as the

erythrodermic type [2]. The most common form is plaque-type psoriasis, characterised by coin-sized to palm-sized, well-defined erythematous squamous plaques, distributed bilaterally [1].

There is a correlation between certain microbial infections and the onset or progression of psoriasis. An established link exists between the development of guttate psoriasis, and a prior infection caused by Streptococcus pyogenes in the tonsils. The occurrence of disease exacerbations has been linked to the colonisation of the skin and/or gut by Staphylococcus aureus, Malassezia, and Candida albicans. Streptococcal infections often occur before or contribute to the worsening of psoriasis in the majority of patients. The presence and potential impact of viruses, such as papillomaviruses, retroviruses, and endogenous retroviruses, in lesional skin remains uncertain and requires further investigation [5]. Recent studies indicate that ongoing subclinical staphylococcal and streptococcal infections may contribute to both the recurrence of acute guttate psoriasis and the onset of chronic plaque psoriasis. Staphylococcus superantigens have been suggested as a potential antigen in the development of psoriasis [6]. Streptococcal and staphylococcal superantigens (SAgs) are a unique family of bacterial toxins that activate large populations of both CD4 and CD8 T-cells and can induce polyclonal B-cell activation as well [7]. The primary objective in all instances is to optimise the effectiveness of the therapy and enhance the patient's general health while minimising any adverse effects. The primary objective of therapy is to attain and maintain control over psoriatic lesions. Physicians and patients should be aware that there is no conclusive remedy for psoriasis. Managing the disease can lead to a decrease in the thickness and redness of the lesions compared to their initial condition after treatment, although a certain degree of erythema may still remain. Often, therapy may not result in the complete elimination of the lesions [2]. Several alternative treatments for persistent plaque psoriasis have been proposed, such as acupuncture, psychotherapy, lifestyle changes (such as quitting smoking), and nutritional supplements (such as vitamin D and fish oil). Nevertheless, there is inadequate data about the efficacy of these therapies. The aim of this study was to determine the effect of three different topically applied herbal mixtures for the treatment of psoriasis and evaluate their clinical efficacy and tolerability.

METHOD

Study design

Forty-eight patients attending the dermatology unit of Al-Hussein Teaching Hospital in Karbala were eligible for this study. They were all suffering from clinical manifestations of psoriasis disease. The diagnosis in each case was established by a clinical examination done by a specialist. Data were collected through direct interviews with the patient and by seeking his or her hospital record as well as previous medical reports. Out of 48 patients examined in the dermatology unit (30 male and 18 female), their ages ranged from 5 to 81 years. Psoriatic lesions lasted anywhere from a year to almost half a century.

Treatment

Twelve patients (9 male and 3 female) were presented with chronic psoriasis (group No.1), which was treated by mixture-A (contains Vaseline, Sesame oil, line seed oil, and Trigonela oil). The other twelve patients (9 male and 3 female) were presented with chronic psoriasis (group No.2) were treated by mixture-B (contains Vaseline, Zinc oxide, Line seed oil, Caster oil, Olive oil, Trigonela oil, Aloe oil and Sesame oil). The last twelve patients (5 male and 7 female) were presented with mild psoriasis (group

No.3) were treated by mixture-C (contains Honey wax, Aloe oil, Lawsonia oil, menth oil, Olive oil and Rubia oil).

Cultivation and microscopic examination

Samples were collected from all study groups; The skin swaps were cultured immediately [8]. The specimens were inoculated on both blood and MacConkey agar plates by the direct streaking method. The plates were incubated at 37 °C for 18–24 hours, then examined for bacterial growth. If growth was absent, the plates underwent an additional 24-hour incubation period before being discarded as negative culture [9]. A gram-staining smear of the specimen was done and examined microscopically to reveal the bacterial growth [8].

Statistical analysis

The statistical analysis in this study was conducted using the SPSS software. Calculations were performed to determine the mean and standard deviation of the quantitative data. The differences between means were analysed using the one-way ANOVA test and the chi-square test in a meticulous and comprehensive manner.

RESULTS

Patients with psoriasis showed a significant reduction in inflammation, itching relief, and reduction of scaly skin lesions by the application of the herbal mixtures, with a decrease in disease severity. Mixture A had the highest percentage of patients responding with a mild, moderate, or strong potency; the total percentage of responses was 75.0%. Mixture B showed a varied percentage of patients responding from mild to strong potency; the total percentage of response was 58.0%. While Mixture C had the same percentage of patients responding (58%) with either mild or moderate potency, as presented in Table1.

Table 1: *(Potency of the herbal oil mixtures among chronic psoriasis group No.1, which was treated by mixture-A (contains Vaseline, Sesame oil, line seed oil, and Trigonela oil), group No.2 was treated by mixture-B (contains Vaseline, Zinc oxide, Line seed oil, Caster oil, Olive oil, Trigonela oil, Aloe oil and Sesame oil), group No.3) were treated by mixture-C (contains Honey wax, Aloe oil, Lawsonia oil, menth oil, Olive oil, and Rubia oil))*

Response level	Potency of herbal mixtures		
	Mixture A	Mixture B	Mixture C
Mild	2 (16.7%)	2 (16.7%)	3 (25%)
Moderate	3 (25%)	3 (25%)	4 (33.3%)
Strong	4 (33.3%)	2 (16.7%)	0 (0%)
Negative	3 (25%)	5 (41.6%)	5 (41.7%)
Total	9 (75%)	7 (58%)	7 (58%)

The total number of participants who showing different response was demonstrated in (Table 2). Group 1, which used mixture A showed that 4 patients had a strong response, 3 had a had a moderate and 2

had a mild response. In Group 2, which uses mixture B, 2 patients have a strong response, and the moderate and weak responses use mixture B, 2 patients have a strong response, and the moderate and weak responses are still the same as in mixture A, but in Group 3, which uses mixture C, the response ranges from moderate (4 patients) to mild (3 patients). Group 1 shows a response percentage from mild (16.7%), moderate (25%) to strong (33%), compared to Group 2, which ranges from mild (16.7%), moderate (25%) to strong (16%), while Group 3 varies from mild-moderate (25% to 33.3%), respectively. The comparison of the mean difference among the study groups based on the level of the response was shown as non-significant differences as presented in Figure (1)

Table 2 *(The number of patients with chronic psoriasis that responded to a different mixture.)*

Groups	Response No. (%)			
	Negative	**Mild**	**Moderate**	**strong**
Group 1	**3 (25%)**	**2 (17%)**	**3 (25%)**	**4 (33%)**
Group 2	**5 (41%)**	**2 (17%)**	**3 (25%)**	**2 (17%)**
Group 3	**5 (42%)**	**3 (25%)**	**4 (33%)**	**0 (0%)**

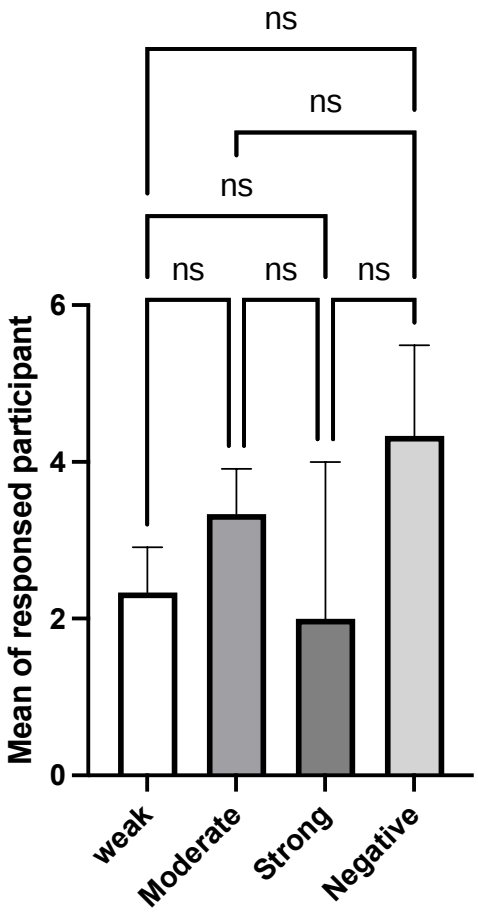

Figure 1 *(Mean differences among the study groups based on the level of response.)*

Figure 2 *(Sample of group 1, (a) before treatment, (b) after treatment)*

Figure 3 *(Sample of group 2, (a) before treatment, (b) after treatment.)*

Figure 4 *(Sample of group 3, (a) before treatment, (b) after treatment.)*

DISCUSSION

In this study, the safety and efficacy of a new mixture of herbal oils were tested among patients with psoriasis. It was shown by the results that the mixes worked well to manage psoriasis. Based on the qualities of the ingredients, the improvement was likely caused by the mixture's anti-inflammatory, antibacterial, antioxidant, and healing properties. A good response (ranging from 16.7% to 33.3%) was obtained in mixture A, which contains Vaseline, Sesame Oil, Line Seed Oil, and Trigonella Oil. This was in line with Penven et al.'s 2005 study [10], which found that scaling and infiltration were significantly improved when Vaseline oil was used before UVB phototherapy to treat psoriasis. Vaseline oil application was more intriguing in cases of thick and scaly psoriasis, most likely because it boosts UV transmission by penetrating the intercellular space and creating an optical matching effect. Vaseline can lower inflammation and slow down the skin's rapid cell formation [11]. Vaseline acts as an occlusive and moisture barrier to keep tissue from drying out and avoid ischemia in deeper tissues. It also keeps lesions from getting bigger [12]. According to Shiri et al. (2011) [13], who investigated the use of an herbal mixture containing sesame oil (as well as bee wax, cera alba, quince seed jelly, natural antioxidants like vitamin E, and ingredients such as sweet almond oil and sesame oil, which have skin-softening properties, it acts as a softening agent and is a useful moisturiser and emollient for human skin. When used with specific microbial strains, such as Bacillus subtilis, Staphylococcus aureus, Escherichia coli, Salmonella typhi, Proteus vulgaris, Cornebacterium diphtheria, and Streptomyces gresius, sesame oil demonstrated strong antimicrobial activity [14]. As demonstrated by Oiso et al. (2008) [15], who documented cases of allergic sensitization to sesame oil when being used for eczema and leg ulcers, some patients may have side effects. The main allergens in sesame oil include sesamin and sesamolin. Sesame oil was applied by the patient in this instance to the palms and soles until an infectious reaction appeared. Since the applied lesions had prior palmoplantar pustulosis, sesame oil absorption might be aided, hastening the allergic reaction. The study's findings regarding the anti-inflammatory and analgesic properties of linseed oil were in line with those of Mohammad et al. (2014) [16], who reported that linseed oil has been approved for topical application for a range of skin disorders and is recognised for its anti-inflammatory, antioxidant, and analgesic properties. A study examined the results of the antibacterial screening of linseed oil extracts, they observed that different petroleum ether extract concentrations demonstrated antibacterial activity against all tested bacteria, with inhibition zones ranging in diameter from 10.2 to 23.5 mm. The extract concentration of 50 mg/cm3 was found to be the most effective at inhibiting K. pneumonia, and S. Aureus [17]. The diffusion method was utilised to assess the antibacterial activity of linseed oil's fatty acid against E. coli. coli, S. aureus, and B. cereus bacteria. It was found that in the inhibitory zone, S. aureus was less active, and B. cereus and E. E. coli were more active. According to the calculation, linseed oil's fatty acid content has strong antibacterial properties. It was reported that adding additional ingredients to mixture B—which includes castor oil, olive oil, trigonella oil, aloe oil, zinc oxide, sunflower seed oil, and sesame oil—would yield a 58% response [18] [19]. The previous study was a controlled trial where 60 patients were treated with aloe vera extract cream (0.5%) for 4–12 months. The results indicated a substantial reduction in psoriatic plaques, with 82.8% of patients seeing improvement compared to just 7.7% in the placebo group ($p<0.001$). The usage of aloe vera for a variety of medical problems, particularly dermatological ones such as wound healing, atopic dermatitis, psoriasis, seborrhoeic dermatitis, and diaper dermatitis, was also investigated by Andreea et al. in 2014. and found that its anti-inflammatory action is probably the most

significant one [20]. Both olive oil and olive leaf extract have anti-inflammatory and antioxidant properties that help with a variety of skin disorders, including psoriasis, acne, seborrhoeic dermatitis, diaper dermatitis, and atopic dermatitis [20]. Olive oil had powerful microbicidal effects, both in vitro and in vivo [21]. Topical 0.25% zinc pyrithione cream, used twice daily, was helpful for localised plaque psoriasis in a randomised, double-blind controlled experiment. Zinc has been explored for the management of psoriasis and psoriatic arthritis. The advantage was linked to zinc pyrithione's anti-proliferative properties. Additionally, he discovered that calamine lotion, which is widely used for symptomatic treatment of pruritus due to its calming qualities, includes zinc oxide or zinc carbonate [22]. Topical use of a 5% extract cream of Aloe Vera three times daily for many weeks resulted in a substantial improvement and enhanced resolution of psoriatic plaques compared to a placebo. Double-blind placebo-controlled trials have shown that the use of aloe extract cream may effectively decrease desquamation, erythema, and infiltration, leading to considerable improvement in skin lesions [13]. Topical application of ricinoleic acid (RA), the main component of castor oil, exerts remarkable analgesic and anti-inflammatory effects. By changing the constituents, mixture C (which contains honey wax, aloe oil, Lawsonia oil, menthe oil, olive oil, and rubia oil), when used, results in a 58% response, although it has a low significant response (33.3% moderate and 25% weak) when compared to the other samples used [23]. Such results were found to be similar to Al-Waili (2005) [24], who supported the results and reported that a mixture of honey, beeswax, and olive oil is effective in treating diaper dermatitis, psoriasis, and eczema. Additionally, it has shown potential for inhibiting the growth of S. aureus or C. albicans. Beeswax has unique properties that make it an ideal substance for skin creams and ointments [25]. Beeswax is used to enhance patients' recognition of symptoms such as dry skin, itching, dermatitis, eczema, or any other kind of irritation related to a skin condition. Beeswax is well-tolerated by those with sensitive skin because of its anti-allergenic qualities [26]. Alkafafy et al. (2014) used an ointment base of beeswax and sesame oil with an ethanolic extract of freeze-dried sharah leaves (Plectranthus). The resultant ointment has the potential to enhance wound healing [27]. Beeswax has a safeguarding effect on human skin when exposed to contact irritants and allergens [13]. Henna is prescribed for skin diseases due to its anti-inflammatory activity [28]. Also, the clinical improvement seen in patients with hand and foot illnesses caused by the use of capecitabine was verified by the use of henna. This demonstrated the anti-inflammatory, antipyretic, and analgesic actions of henna [29]. Natural henna has been recently presented as a treatment for burning and infected wounds [30]. Some researchers have found data supporting its antibacterial and antioxidant capabilities in wound healing. Topical treatment is used with the purpose of either providing respite from symptoms, managing the condition, or achieving a complete resolution of the underlying illness. Emollients provide symptomatic alleviation for dry skin conditions such as ichthyoses, xeroderma, disorders of keratinization, and atopic dermatitis [31]. The 1 mg/mL concentration of the methanol extract from henna leaves showed immunostimulant activity by enhancing the proliferation of T lymphocytes. This may explain why the recipe is not very effective for treating psoriasis [32]. Lawsonia inermis, P. granatum, and H. Sabdariffa extracts have antibacterial and antifungal activities and exhibit synergistic effects when used with commercial antimicrobials [33]. Also, the result was supported by Yusuf et al. (2012) [34], who said that the extract of leaves of henna has antimicrobial efficacy against common human pathogens such as Escherichia coli, Staphylococcus aureus, and Candida albicans. Rubia cordifolia has significant anti-inflammatory activity but depends on the dose [35]. Also, Rubia cordifolia exhibited anti-inflammatory properties, as evidenced by a notable decrease in the formation of granular tissue [36]. Periyanayagam et al. (2004) [37] supports the result by using the aqueous extract of the roots of Rubia cordifolia and Hemidesmus indicus for their anti-inflammatory activity, while Shweta Lodi et al. (2011) [38] found that

the ethanolic extract of the roots of Rubia cordifolia did not affect macrophage yield, viability of macrophages, phagocytic index, or plaque-forming cell count. Whereas high doses increased phagocytic index, plaque-forming cell count, and serum immunoglobulin level. The root of Rubia cordifolia L. is a potent antiproliferative and apoptogenic agent [39]. The keratinocyte terminal differentiation-promoting capacity of Radix rubiae (the dry root of Rubia cordifolia L.) has been definitively confirmed. This study strongly indicates that Radix rubiae shows promise as an anti-psoriatic agent and should be further developed for clinical use in psoriasis treatment [40]. Also, the ethyl acetate fraction of Radix rubiae inhibits cell growth and promotes terminal differentiation in cultured human keratinocytes, which strongly suggests its anti-psoriatic activity [41]. Rubiae Radix inhibits the activation of mast cells by targeting Syk, a crucial enzyme involved in mast-cell signalling pathways [42]. This mechanism contributes to its anti-allergic properties. The wound healing activity of the roots of the R. cordifolia was effective in the functional recovery of wound healing and in histopathological alterations and preventing infection [43]. The root extract has been used as an anti-inflammatory agent, it inhibited the lipoxygenase enzyme pathway and had anti-proliferative action during the rapid development of a model edema [44]. Flavonoid glycosides (luteolin-7-O-rutinoside) have a potent inhibitory effect on histamine release and antigen-antibody reactions [45]. Azulene found in the oil of peppermint has been shown to have anti-inflammatory effects in laboratory animals and has also been shown to be an analgesic and coolant. Peppermint oil stimulates cold receptors on the skin and dilates blood vessels, causing a sensation of coldness and an analgesic effect [46].

CONCLUSION

The herbal oil mixtures have shown promise as a potential therapeutic option for treating psoriasis, with minimal side effects that are well-tolerated. It is worth noting that, in contrast to the majority of psoriasis treatments, no systemic side effects were observed in any of the patients included in the study. These findings suggest that these mixtures may be a viable treatment option for patients with liver or renal impairments, indicating their potential safety and effectiveness.

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