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REVIEW

Genital and Inverse/Intertriginous Psoriasis: An Updated Review of Therapies and Recommendations for Practical Management

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ABSTRACT

Genital and inverse psoriasis can develop in more than one-third of patients who have psoriasis. Psoriatic plaques in the genital and intertriginous skin are challenging to treat because the skin is thin and often occluded, making it more sensitive to certain therapies. Traditional guidelines indicate topical therapies, such as corticosteroids, topical calcineurin inhibitors (TCI), and vitamin D analogs as first-line recommendation in treating genital and inverse psoriasis. There have been developments in the treatment of genital and inverse psoriasis using systemic therapies, including IL-17 inhibitors and PDE-4 inhibitors.

Keywords: Psoriasis; Genital; Inverse; Intertriginous; Special site psoriasis

Key Summary Points

Among patients with psoriasis, up to 63% may develop genital psoriasis and 79% develop inverse psoriasis.

Patients with genital psoriasis often experience significant internalized stigma and physical distress, including sexual dysfunction.

Because of the sensitive nature of the skin surrounding genital and intertriginous areas, it is important to understand the benefits and side effects of different treatments for genital and inverse psoriasis.

The first-line recommended therapy is topical corticosteroids, topical calcineurin inhibitors, and topical vitamin D analogs. The second-line recommendations are topical coal tar preparations and topical PDE-4 inhibitors. For recalcitrant or severe cases of genital psoriasis, biologic and other systemic therapies are recommended, with the most data available for ixekizumab.

Currently, clinical trials are evaluating the efficacy and safety of apremilast (oral PDE-4 inhibitor) and guselkumab (IL-23 inhibitor) for the treatment of genital psoriasis.

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DIGITAL FEATURES

This article is published with digital features, a summary slide, to facilitate understanding of the article. To view digital features for this article, go to https://doi.org/10.6084/m9.figshare.14406215.

INTRODUCTION

Psoriasis is a chronic inflammatory condition characterized by the development of itchy, erythematous plaques on the body and can have a negative psychosocial impact on patients. Psoriasis is also one of the most common skin conditions affecting the genitalia, and about 63% of psoriatic patients will develop genital lesions during the course of their disease [1]. Psoriatic lesions in these areas may be smooth and non-scaly, and the genital localization can result in debilitating emotional and physical distress as well as sexual dysfunctions. Genital psoriasis is associated with poor quality of life and significant amount of stress, even though it affects only a small portion of body surface area (BSA) [2, 3]. While it is more common in men, the severity of symptoms is higher in women [1]. Approximately 79% patients will also develop inverse or intertriginous psoriasis [1]. Because of the location of their psoriatic lesions in sensitive areas, patients will not often disclose their disease to physicians until they are asked.

In clinical trials, the severity of genital psoriasis has been assessed using a validated instrument. The Static Physician's Global Assessment of Genitalia (sPGA-G) scale is a well-established, validated outcome measure that was developed to assess the severity of genital psoriasis [4]. In women, the assessment includes the clitoral prepuce, labia majora, labia minora, and perineum. In men, it includes the penis, scrotum, and perineum. This scoring system does not include the pubis, inguinal folds, perianal region, or the gluteal cleft.

sPGA-G is a 6-point numerical scale that ranges from 0 (clear) to 5 (very severe) at a given time point and is determined by a combination of three plaque characteristics (erythema, elevation, and scale). A score of 0 (clear) indicates that there is residual or no erythema, no plaque elevation, and no scaling. A score of 1–2 (minimal-to-mild) indicates a faint, light-pink erythema with slight plaque elevation and some fine, white surface dryness or scales. A score of 3–4 (moderate-to-severe) represents moderate-to-severe amount of erythema, substantial plaque elevation with well-defined edges, and coarse scales on most to all lesions. A score of 5 (very severe) represents deep-red erythema with very significant plaque elevation and thick, adherent scales that cover most or all lesions. An instrument called the Genital Psoriasis Symptoms Scale (GPSS) has also been developed to record patient-reported outcome measures specific for genital psoriasis [5].

The treatment of genital and inverse psoriasis must be approached with special care as the skin is much thinner and considerably more susceptible to side effects of certain therapies [6]. Although there is a limited number of clinical trials that demonstrate the efficacy and safety of treatments, specific data show that genital and inverse psoriasis can be successfully managed with both topical and systemic therapies, including biologic and small-molecule inhibitors. Within the past 2 years, systematic reviews have been published for available treatments for genital [7] and inverse psoriasis [8]. The goal of this paper is to focus on the most current, known benefits and potential side effects of the different treatment modalities for genital and inverse psoriasis and the current recommendations in navigating therapy for each individual patient.

METHODS

A literature search was performed using the MEDLINE (PubMed) and Embase database using the search terms ('genital' OR 'inverse' OR 'intertriginous') AND 'psoriasis' AND 'treatment' AND ('topical' OR 'corticosteroid' OR 'calcineurin inhibitor' OR 'vitamin D' OR 'phosphodiesterase-4 inhibitor' OR 'antiseptic' OR 'antifungal' OR 'coal tar' OR 'biologic' OR 'TNF' OR 'systemic' OR 'adalimumab' OR 'etanercept' OR 'infliximab' OR 'certolizumab' OR

'secukinumab' OR 'brodalumab' OR 'ixekizumab' OR 'guselkumab' OR 'tildrakizumab' OR 'risankizumab' OR 'mirikizumab' OR 'ustekinumab' OR apremilast OR 'non-standard' OR 'phototherapy' OR 'excimer laser' OR 'botulinum'). One reviewer identified all included articles (J.H.). Only studies written in the English language were reviewed. All original prospective, retrospective studies, and nonexperimental descriptive studies, such as case series and case reports, were chosen for the purpose of this paper. Systematic review articles were examined to identify studies that were not found in the original PubMed search. Inclusion criteria were patients with psoriasis affecting the genital and intertriginous areas, discussed treatments for their disease, and published prior to November 2020. Exclusion criteria were studies that did not discuss genital or inverse psoriasis or did not discuss treatment for genital or inverse psoriasis. This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

Evidence levels are reported based on the best available evidence as discussed in American Academy of Dermatology (AAD) psoriasis guidelines [9]. Grade A indicates that recommendation is based on consistent and good-quality patient-oriented evidence. Grade B indicates that recommendation is based on inconsistent and good-quality patient-oriented evidence. Grade C or lower indicates recommendation based on consensus, opinion, or case studies.

RESULTS

A total of 779 papers that were potentially unique and relevant to our search was identified. After applying the inclusion and exclusion criteria, 47 papers were chosen for the purpose of our review (Fig. 1), of which 30 papers were on topical treatments, 15 papers on biologic and systemic treatments, and 2 papers on non-standard therapies. For the purpose of our review, we focused on summarizing findings that were most recently published and were not included in other reviews on treatments of genital and inverse psoriasis [7, 8].

Topical Treatments

Topical Corticosteroids

The current first-line recommendation for the short-term treatment of mild-to-moderate genital (grade of recommendation: B) and inverse psoriasis (grade of recommendation: C) is low- to mid-potency topical corticosteroids [10]. Fluticasone propionate 0.005%, a mid-strength topical steroid, used twice daily for 2 weeks has shown more than 50% improvement in facial and intertriginous psoriatic lesions [11]. These results were maintained for 8 more weeks with once-daily application for 2 consecutive days every week, suggesting gradual taper can help with long-term (> 4 weeks) management. The risk of side effects may be reduced with the use of low-potency steroids. They may also be used in conjunction with other topical therapies to enhance efficacy [10–12].

Because the skin in the genital region is thin, there is an increased amount of percutaneous absorption [13, 14]. Also, due to the occlusive nature in the intertriginous areas, steroids have increased penetration and therefore are recommended for short-term therapy [15]. The recommended maximum duration of treatment is 4 weeks, which is set to reduce the risk of developing well-known side effects, including atrophy, telangiectasia, and striae.

While low- to mid-potency topical corticosteroids are generally more accepted to treat sensitive skin areas, such as the genital and intertriginous regions, topical corticosteroids with greater strength in shorter intervals may be needed to treat resistant or moderate-to-severe disease. A randomized clinical trial showed that 0.1% betamethasone valerate once daily for 28 days resulted in significant decrease in the Mean Psoriasis Area and Severity Index (M-PASI) score (86.4%) compared with 0.005% calcipotriol (62.4%) and 1% pimecrolimus (39.7%). [16] The study also reported a decrease in pruritus by 78% with 0.1% betamethasone compared with 57% for 0.005% calcipotriol and 35% for 1% pimecrolimus. Few studies have

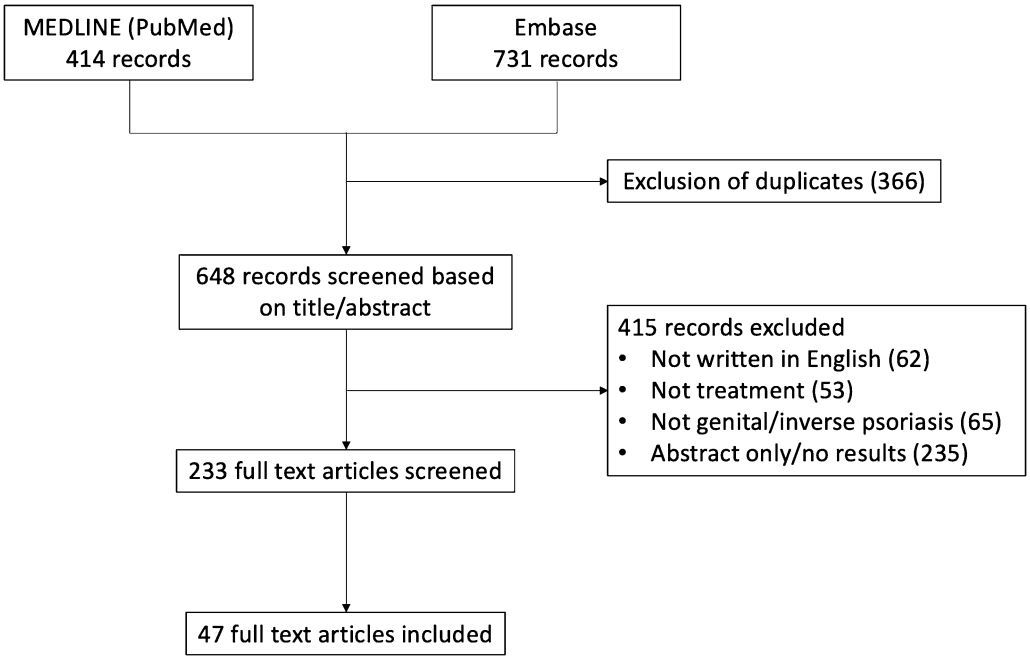

Fig. 1 Genital and inverse psoriasis: study method for article inclusion and exclusion

shown that mid- to high-potency corticosteroid therapy may be more effective and produce fewer side effects compared with other nonsteroid topical treatments [11, 17, 18].

Topical Calcineurin Inhibitors

Topical calcineurin inhibitors (TCI), such as tacrolimus and pimecrolimus, are alternative options for long-term topical therapy and are associated with milder and more manageable long-term side effects, such as skin atrophy (grade of recommendation: B). TCI blocks T-lymphocyte activation and formation of lymphokines, such as interleukin-2 and gamma interferon, by preventing the dephosphorylation and translocation of nuclear factor of activated T cells (NF-AT). [19] It is important to note that, because TCI does not affect collagen synthesis, there is a significantly lower risk of skin atrophy and related side effects compared with topical corticosteroids. [20] However, there is a risk of mild pruritus and local burning in the sensitive groin region.

TCI is indicated as second-line therapy for short-term chronic treatment of atopic dermatitis and is considered off-label for the treatment of psoriasis. However, the use of TCI for the treatment of inverse psoriasis has been supported by many studies, one of which demonstrated that applying tacrolimus ointment 0.1% twice daily achieved clearance or significant improvement after as early as 8 days of treatment [21]. After 8 weeks, the tacrolimus group showed greater improvement of Physician Global Assessment (PGA) (65.2%) compared with the placebo group (31.5%). Similarly, in another randomized clinical trial, 71% of patients who received pimecrolimus cream 1% twice daily for 8 weeks had an IGA score of 0 or 1, compared with 21% of patients who received placebo [22]. These differences could be seen as early as week 2 (54% versus 21%). In both studies, the adverse events were similar between the groups.

Topical Vitamin D Analogs

Topical vitamin D analogs, such as calcipotriol and calcitriol, are another long-term therapy recommended for genital and inverse psoriasis (grade of recommendation: C). Generally, studies have shown that topical calcipotriol and calcitriol are safe, but are less effective compared with topical corticosteroids or TCI. [23] One randomized head-to-head comparison

between 3 μg/g calcitriol ointment and 50 μg/g calcipotriol ointment twice daily application found that calcitriol is better tolerated and more effective in the treatment of inverse psoriasis, with greater improvement of IGA (67% versus 33%). [24] The efficacy and safety of topical vitamin D analogs have been demonstrated in patients treated for 8 weeks. One head-to-head study showed that tacrolimus 0.3 mg/g is more effective compared with calcitriol 3 μg/g. [25] Topical vitamin D analogs are associated with more severe cutaneous irritation compared with TCI. [23, 26, 27].

Topical Phosphodiesterase-4 Inhibitors

Current evidence from clinical studies has shown that phosphodiesterase (PDE)-4 inhibitor is a safe and effective alternative to topical corticosteroids and TCI in both mild-to-moderate atopic dermatitis and psoriasis (grade of recommendation: C). [28–31] More recently, the use of crisaborole, a topical PDE-4 inhibitor, was found to be well tolerated and effective in treating genital and inverse psoriasis. [32] A randomized, double-blinded, placebo-controlled trial showed that treatment with crisaborole 2% ointment ($n = 14$) twice daily for 4 weeks demonstrated 66% improvement compared with the 9% improvement with the placebo ointment ($n = 7$), measured by the Target Lesion Severity Scale (TLSS) [32]. After 8 weeks, patients in the crisaborole group continued to show improvement up to 81% lesional improvement and 71% lesional clearance. This study did not report any adverse event.

Roflumilast, another topical PDE-4 inhibitor, was studied in a phase IIb trial over a period of 12 weeks for the treatment of inverse psoriasis [33]. Psoriatic patients with intertriginous involvement were randomly assigned to receive roflumilast 0.3% cream ($n = 16$), roflumilast 0.15% cream ($n = 18$), or placebo ($n = 17$). At week 6, 73%, 44%, and 29% patients achieved Investigator Global Assessment (IGA) score indicating clear or almost clear and a two-grade improvement in the intertriginous-area IGA score in the roflumilast 0.3% group, roflumilast 0.15% group, and placebo group, respectively. At week 12, 93% had an intertriginous-area IGA score of 0 in roflumilast 0.3% group, compared with 18% in the placebo group.

Topical Coal Tar Preparations

Emollients and topical coal tar preparations have shown significant efficacy in both adults and children with genital lesions without causing significant adverse events. Currently, the mechanism of action of coal tar is unclear and still under investigation. It is proposed that coal tar can suppress keratinocyte proliferation and differentiation in psoriatic lesions and may also have an antiinflammatory role [34]. Coal tar 2% and topical salicylate preparations twice daily to the affected area showed significant improvement at week 8 for one patient, with some residual postinflammatory hyperpigmentation [35]. This formulation provides a favorable alternative to crude coal tar, coal tar ointment, and coal tar solution because it is easy to spread, dries relatively quickly, and can be obtained without a prescription. While there are not many clinical trials that have investigated the efficacy and safety of tar prep in genital and inverse psoriasis specifically, the National Psoriasis Foundation (NPF) recommends topical coal tar preparations as second-line therapy in the treatment of inverse psoriasis, either alone or in combination with topical steroids (grade of recommendation: B) [36].

Antiseptics/Antifungals

Topical antiseptic treatments, such as chlorhexidine and chloroxylenol, have been used previously in the treatment of inverse psoriasis flares to prevent bacterial and fungal colonization in these areas (grade of recommendation: D). [17, 37, 38] While antifungal therapies may help with intertrigo, a differential diagnosis of inverse psoriasis, it has not been strongly suggested to alleviate clinical symptoms of inverse psoriasis.

Biologic and Other Systemic Treatments

Biologics and other oral systemic therapies, such as methotrexate and cyclosporine, are reserved for the more severe and resistant cases of genital and inverse psoriasis. Typically, both

types of psoriasis are considered isolated lesions, and thus are not widespread enough to be considered for systemic treatment, which may be associated with more severe adverse effects [7]. Recently, 78 global psoriasis experts in the International Psoriasis Council developed a consensus statement to recategorize psoriasis severity to consider special cases, such as in patients with genital psoriasis who are diagnosed as mild based on BSA and symptom severity but may warrant systemic therapy [39]. This Delphi exercise has endorsed the use of a more practical approach to categorize psoriasis disease severity when it involves special areas of the body, such as genital and intertriginous areas.

Oral Systemic Therapies

Currently, there are no large clinical trials that evaluate the efficacy and safety of oral systemic therapies for genital and inverse psoriasis. There are two reports on methotrexate (grade of recommendation: C) and one case report on mycophenolate mofetil [13]. Methotrexate was associated with several side effects including headache, insomnia, urinary tract infections, and gastrointestinal symptoms [13]. Thus, the use of methotrexate should be limited to patients with debilitating quality-of-life impairment [23].

Tofacitinib, a Janus kinase (JAK) 1/3 inhibitor used in rheumatoid arthritis, psoriatic arthritis, and ulcerative colitis, has been used successfully to treat a patient who had a combination of inverse psoriasis, alopecia areata, and vitiligo [40]. The patient was treated with 5 mg twice daily with narrowband ultraviolet-B (NB-UVB) phototherapy three times per week. This combination therapy has been supported by studies that demonstrated that JAK inhibitors may be more effective when used with phototherapy [41, 42]. Adverse events reported were few episodes of headache and flu-like symptoms, which led the patient to self-discontinue tofacitinib after 1 month only.

There are also reports on the use of oral antifungals [18, 20], oral antibiotics [43], dapsone [44, 45], pramoxine [46], doxepin [47], antihistamines [12], and antipsychotics [48] for the treatment of genital and inverse psoriasis. However, the benefits have not been studied extensively.

Currently, there is a phase III randomized clinical trial (DISCREET) that is evaluating the efficacy and safety of apremilast, an oral PDE-4 inhibitor, in patients with moderate-to-severe genital psoriasis (NCT03777436). Patients receive either apremilast 30 mg or placebo twice daily for 16 weeks.

IL-17 Inhibitors

Currently, ixekizumab, a high-affinity monoclonal antibody targeting interleukin (IL)-17A, is the only drug that contains data on genital psoriasis in its Food and Drug Administration (FDA) label (grade of recommendation: B) [49]. Several papers have demonstrated significant improvement in genital lesion appearance, itch, sexual health, and quality of life in resistant genital psoriasis treated with ixekizumab. [49–52] A randomized, placebo-controlled, phase III clinical trial demonstrated the long-term efficacy and safety of ixekizumab for up to 52 weeks [51]. Patients received either ixekizumab 80 mg (n = 75) or placebo (n = 74) every 2 weeks up to week 12, then entered an open-label period where all patients received ixekizumab 80 mg every 4 weeks up to week 52. In total, 73% of patients in the initial treatment arm were reported to achieve clear or almost clear genital skin (sPGA-G 0/1) by the end of week 12, and 75% by the end of week 52. Similarly, 79% of patients who were in the initial placebo group also achieved sPGA-G0/1 at the end of week 52, showing rapid improvement. The number and severity of adverse events remained the same as previous studies of ixekizumab in patients with moderate-to-severe plaque psoriasis. The dosing recommendation of ixekizumab for the treatment of psoriasis is 160 mg subcutaneously at week 0, 80 mg every 2 weeks up to week 12, and finally 80 mg every 4 weeks. For plaque psoriasis or genital psoriasis with minimal disease severity, dosing recommendation is 80 mg subcutaneously every 2 weeks [53].

There are two other biologic therapies that have been reported in the literature, one case report for each, for the treatment of inverse psoriasis [54, 55]. There is a single case report of

successful treatment of inverse psoriasis with adalimumab, a fully humanized monoclonal antibody against TNF-alpha [54]. The patient was treated with 40 mg every 14 days for 90 days, and experienced complete regression of psoriatic lesions and psoriatic arthritis. In another case report of recalcitrant psoriasis, a patient was treated with ustekinumab, an IL-12/23 inhibitor, 45 mg every 4 weeks for the first 4 weeks, then 45 mg every 12 weeks [55]. After the first injection, the patient had an adverse event of external otitis with tympanic perforation that interrupted the treatment. The patient was restarted on ustekinumab 3 months later and completed three injections that resulted in significant improvements of pruritus, erythema, and quality of life.

Currently, there is one actively recruiting clinical trial studying the effectiveness of guselkumab in moderate facial and genital psoriasis (GULLIVER study) (NCT04439526).

Nonstandard Therapies

There are a small number of clinical trials that have explored other nonstandard therapies for recalcitrant genital and inverse psoriasis. One study investigated the application of a new source of narrowband UVB known as monochromatic excimer light (MEL), which emits at 308 nm, in various chronic and resistant localized dermatoses that include the genital region [56]. Another study showed that botulinum toxin type-A (BoNTA) helped to mitigate symptoms of inverse psoriasis by potentially preventing perspiration [57]. BoNTA injections of 2.4 U were given across the psoriatic lesions 2.8 cm apart, with a total dosage of 50–100 U per patient, depending on the severity. By week 12, 13/15 (87%) patients had shown improvement, and no adverse events were reported.

DISCUSSION

Psoriasis in the genital and intertriginous areas does not always present with the common characteristics of a typical plaque psoriasis. Studies have shown that patients with genital psoriasis reported lower overall quality of life compared with psoriatic patients without genital involvement [2, 3]. Patients experience significantly higher internalized stigma and impairments in physical activities as well as relationships with others. Therapies that are widely accepted in treating plaque psoriasis in common areas of the body may not always be an option in treating lesions in the genital and intertriginous areas, where the skin is much thinner and occluded.

Practical Management of Genital and Inverse Psoriasis

First-line therapy for mild-to-moderate genital and inverse psoriasis remains low- to mid-potency topical corticosteroids, topical calcineurin inhibitors (e.g., tacrolimus, pimecrolimus), and topical vitamin D analogs (e.g., calcipotriol, calcitriol) (Fig. 2). While topical corticosteroids can result in significant clinical improvement and clearance of lesions, they must be carefully used especially in genital and intertriginous lesions. It is recommended that genital and inverse psoriasis is treated with topical steroids for a short period of time (2–4 weeks). Currently, there are not sufficient safety data on greater than 4 weeks of treatment. Although the adverse effects of topical corticosteroids have discouraged its use over long periods of time (> 4 weeks), studies have indicated that applying the treatment in moderation and in intervals results in long-term management, even in these delicate areas of the skin.

TCI is an off-label option for patients with genital and inverse psoriasis who require maintenance therapy over a longer period of time. Although patients respond better to topical corticosteroids, TCI can be used for longer durations with decreased risk of skin thinning, though TCI side effects may include burning sensation and mild itching.

Topical vitamin D analogs are another alternative to topical corticosteroids when considering longer course of treatment, but they are considered less effective and associated with more side effects compared with TCI [25].

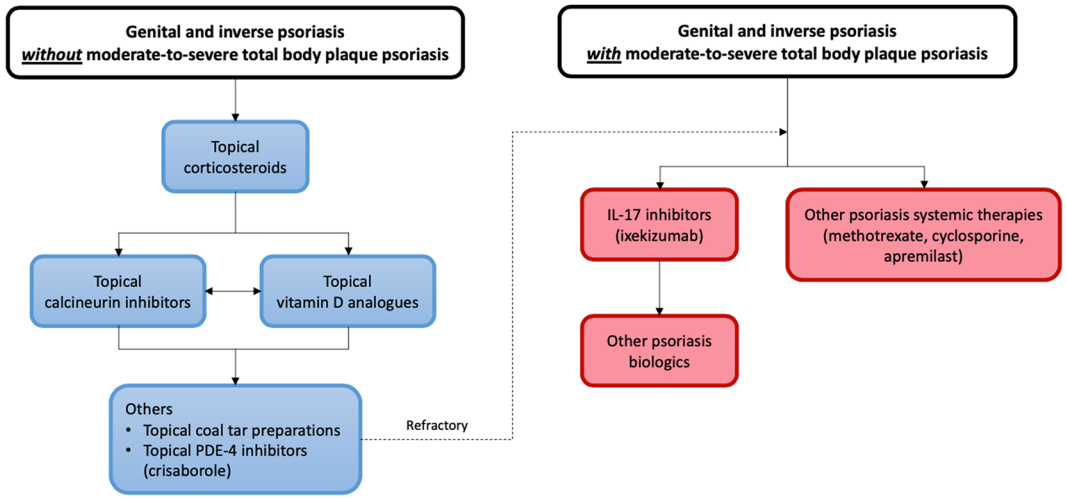

Fig. 2 Treatment of genital/inverse psoriasis. *IL* interleukin, *PDE* phosphodiesterase

Second-line therapies include topical PDE-4 inhibitor (e.g., crisaborole) and topical tar-based products, which have shown to reduce inflammatory reactions and flares when used in combination with low-potency topical corticosteroids (Fig. 2). Topical coal tar preparations have an unknown mechanism of action in the treatment of psoriasis, but they have shown significant clinical benefits and safety data in genital and inverse psoriasis. While tar-based products may appear potentially irritant and are less frequently recommended by providers, they present a promising utility in treating patients with resistant psoriatic lesions.

Topical PDE-4 inhibitors (e.g., crisaborole, roflumilast) are effective and well tolerated in genital and inverse psoriasis. Clinical trials have shown success in treating genital and inverse psoriasis with PDE-4 inhibitors, which could be an alternative mode of therapy for patients who do not respond well to other first-line topical treatments, such as corticosteroids or TCI.

Several topical agents in development have shown potential in treating psoriasis, such as tapinarof and delgocitinib, which are currently under investigation and not marketed. Currently, only tapinarof is being considered for FDA approval for the treatment of plaque psoriasis. These therapies can be studied more in-depth in the future for the treatment of special site psoriasis, including genital and inverse psoriasis. Tapinarof is an aryl hydrocarbon receptor (AhR) modulating agent (TAMA) that is considered first-in-class for the treatment of psoriasis and atopic dermatitis. Two phase II studies have shown promising results in both safety and efficacy of tapinarof cream formulation in adult patients with psoriasis with body surface involvement $> 1\%$ and $< 15\%$ and mostly mild and moderate adverse events [58, 59]. Delgocitinib is a Janus kinase inhibitor that affects a potential pathway that causes certain inflammatory and autoimmune diseases, and its ointment formulation has been recently approved in Japan for the treatment of atopic dermatitis [60]. Larger prospective studies need to be performed to confirm these analyses on the safety and effectiveness of these drugs, both of which may become a suitable alternative to topical corticosteroids.

Psoriasis biologics, including ixekizumab, are highly recommended for patients with refractory or moderate-to-severe genital psoriasis. Of note, ixekizumab, an IL-17 inhibitor, currently includes data on efficacy for genital psoriasis in its FDA label for psoriasis. Multiple studies have reported the therapeutic significance of ixekizumab in providing symptomatic relief and improving quality of life with minimal side effects in patients with genital psoriasis. Systemic therapies (e.g., methotrexate, cyclosporine) can also be considered for patients with

refractory or moderate-to-severe genital psoriasis. Methotrexate and cyclosporine should be used cautiously and evaluated for each individual patient case because of their association with several side effects.

Oral PDE-4 inhibitors, such as apremilast, have been associated with gastrointestinal side effects, but topical PDE-4 inhibitors are associated with significantly less occurrence of adverse events (< 1%), with local irritation being the most common. These can be an effective alternative for genital and inverse psoriasis treatment when other therapies fail. There is currently a phase III study (DISCREET) that is investigating the efficacy and safety of apremilast in patients with moderate-to-severe genital psoriasis.

CONCLUSION

Genital and inverse psoriasis are common forms of psoriasis that require special consideration. The prevalence of genital and inverse psoriasis is quite high, but these diseases are often unreported by patients because of stigmatization and embarrassment. The skin in both the genital and intertriginous areas is thin and sensitive, which makes it more susceptible to potentially enhancing systemic absorption. The first-line recommended therapy is topical corticosteroids, topical calcineurin inhibitors, and topical vitamin D analogs. The second-line recommendations include topical coal tar preparations and topical PDE-4 inhibitors (e.g., crisaborole). Biologic therapies, specifically ixekizumab, have been recommended for recalcitrant or severe cases of genital psoriasis, given the localized nature of the disease. A recent consensus statement from the International Psoriasis Council recognized that special site psoriasis, including genital psoriasis, is considered one category in which patients may receive systemic treatment. More studies on the use of oral PDE-4 inhibitors, topical agents including tapinarof and delgocitinib, and other systemic therapies are underway.

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Compliance with Ethics Guidelines. This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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