Psoriasis and indigo naturalis as a treatment

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Psoriasis is an inflammatory and proliferative disease. Psoriasis clinical features vary from plaque-type psoriasis to pustular form. Psoriasis is an immune-mediated disease, which affects epidermal keratinocytes. Regard to serious side effects of chemical therapy in psoriasis patients, various projects were performed all around the world to find new therapeutic approaches for psoriasis. Various studies confirmed that Indigo naturalis treatment induced long-term remission in patients with psoriasis in all ages.

Introduction
Psoriasis is an inflammatory and proliferative disease (1). Psoriasis clinical features vary from plaque-type psoriasis to pustular form (1,2). Psoriasis prevalence depends on ethnicity. African-American and Native American population rarely develop psoriasis. Psoriasis occurs in 2 to 4 percent of United States population. Its incidence is estimated to be 1.5-3 percent in Europe (3). Psoriasis is more common in Japan in comparison with China. Male/female ratio is 1. Most cases occur before 46 years of age and patient mean age is 33. Although psoriasis male/female ratio is 1, women develop disease in earlier ages in comparison with men (4). One-third

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of patients with psoriasis have a first or second-degree relative with psoriasis (5).

Pathophysiology

Psoriasis is an immune mediated disease, which affects epidermal keratinocytes. Different studies demonstrated that psoriasis could be controlled by immunosuppressive agents (5). There are numbers of reports of psoriasis development in patients who have undergone bone marrow transplant from psoriatic donor. Skin is considered as a lymphoid organ, which contains mast cells, fibroblasts, granulocytes and T lymphocytes (6). Keratinocytes synthesize cytokines. Various stimulators could activate immune response in skin such as infections, chemical agents and sunlight or ultraviolet light (7). It is confirmed that T cells play initial role in psoriasis. CD\textsubscript{4} and CD\textsubscript{8} lymphocytes infiltrate in psoriasis lesions. Moreover, psoriatic plaque contains interferon gamma, interleukin-2 and 12. There is an association between HLA-Cw6 and psoriasis. Changes in 9 parts of chromosome (PSORS1-9) might lead to psoriasis (8). Nutritional deficiency such as omega-3, folic acid and vitamin B-12 deficiencies might be triggers for psoriasis or its flare-up (9).

Clinical features

Psoriasis could decrease patients’ quality of life. Many co-morbitities are also associated with psoriasis such as type 2 diabetes mellitus, Crohn disease, metabolic syndrome and psoriatic arthritis. Malignancy might occur in patients received immune suppressive treatment. New investigation showed a relation between psoriasis and cardiovascular disease (4-6). Scaling plaques and papules are main characteristics of psoriasis. Lesions are well-defined and dry with gray or silver scales. Skin lesion distribution is symmetric. Plaques and papules occur on elbow, lumbosacral, knee, scalp or body folds. Psoriasis is a Koebner’s phenomenon positive disorder and lesions develop after trauma (5). Oral mucosa and tongue might be involved in psoriasis and lead to geographic tongue appearance. Clinical types of psoriasis include plaque form, erythroderma, flexural, guttate, generalized pustular, palmoplantar and nail disease. Plaque form psoriasis (psoriasis vulgaris) is the most common type. Nail involvement occurs in 50 percent of patients (2,6).

Twenty-five percent of patients with psoriasis develop arthritis and in 10 percent of them articular symptoms occur before skin lesions. Psoriasis arthritis is a seronegative disorder, which presents as an oligoarthritis (4).

Treatment

Psoriasis treatment method depends on disease expansion and severity. The treatment of mild psoriasis with limited lesions is using topical corticosteroid, vitamin D3 analogues, retinoid, anthralin and phototherapy. Salicylic acid shampoo is used for scalp lesions (10).

Oral agents and systematic treatment would be administered in patients with severe disease. Methotrexate, retinoids, cyclosporine and biologic drugs are used in these patients. Retinoid agents are teratogenic. Biologic drugs interfere with T cells such as Efalizumab and Alefacept. Cyclosporine is a toxic drug, which could lead to renal failure and liver dysfunction. Methotrexate is a potent toxic agent, which is myelosuppressive agent and could induce liver fibrosis (11).

Natural treatment

Regard to serious side effects of chemical therapy in psoriasis patients, various projects were performed all around the world to find new therapeutic approaches for psoriasis.
Some studies concluded that use of antioxidant diet could prevent disease flare-up such as omega-3 and omega-6. Traditional Chinese medicine introduced many herbal drugs, which were used as seasonings. These herbs included garlic, ginger, red pepper, rosemary and indigo naturalis (12).

Recent studies demonstrated that indigo naturalis was an anti-inflammatory and anti-tumoral agent and inhibited malignant cell proliferation (13-15). Indigo naturalis is derived from stem and leaves of an herb called Baphicacanthus cusia in Chinese literature (13). This herb was administered orally in patients with psoriasis (14). In recent years, effect of topical extract of indigo naturalis has been shown. To best of our knowledge, topical indigo naturalis efficacy was first reported in Taiwan (14). Indigo naturalis is a powder in dark blue. Lin et al. confirmed that Indigo naturalis modified cell proliferation, apoptosis and cell differentiation particularly in keratinocytes. Applying this herb leaded to epidermal normal physiologic function (14). In his study 74 percent of patients treated completely with Indigo naturalis ointment. Nail psoriasis was difficult to be treated (13). Chaing showed that topical indigo naturalis improved nail psoriasis; particularly in patients who had co-existing fungal nail disease (15). It is not clear whether indigo naturalis could prevent pathogen growth, improve nail conditions and recover normal protective nail layer or not. Childhood psoriasis treatment is an important issue, because its long-term complication and safety should be considered (13). There were some evidences that indicated that indigo naturalis was effective in childhood psoriasis, so more investigations should be performed to proof this idea. Some studies revealed that short-term remission occured in herbal drug combination with anti-psoriatic pharmacotherapy (APP) (16).

Traditional herbal drugs are considered as anti-inflammatory and anti-angiogenic agents that regulate cytokine secretion. Availability and natural origin of such drugs make them popular. It is estimated that more than 50 percent of patients with psoriasis use herbal drugs as an alternative treatment (10).

The side effects, dosage, and composition of these herbs have not been recognized yet. Most common adverse events after orally administered indigo naturalis are gastrointestinal complications; severe complication was also reported such as liver injury. Hematologic index and liver and renal function test were normal in patients used topical indigo naturalis (12). Indigo naturalis does not easily soluble in water and it is poorly digested and absorbed by gastrointestinal tract. Therefore, its topical use might be associated with fewer complications (13). One of indigo naturalis side effects is liver damage, thus its combination with methotrexate might be harmful.

Conclusion

Various studies confirmed that indigo naturalis treatment induced long-term remission in psoriatic patients in all ages. Nevertheless, regard to the common belief that “herbal drugs are safe”, many side effects do not report by patients. Therefore, clinicians should be aware of probable side effects. On the other hand, there are not enough clinical trials in which indigo naturalis efficacy and safety have been confirmed, thus children and elderly should be observed closely.

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Conflict of Interest
The authors declare no conflict of interest.