Rozdział 7. Streszczenie w języku angielskim.

Psoriasis is a chronic inflammatory immune-mediated disease that is widespread worldwide. Its global prevalence is between 0.27% and 11.4% in adults and appears more frequently in adults than in children. The most classic symptoms of plaque psoriasis are erythematous, well-demarcated lesions generally covered by silvery scales. In typical psoriatic skin lesions, deregulated differentiation of epidermal keratinocytes (parakeratosis and acanthosis) and infiltration of immune cells into the deeper layers of the skin may be observed.

Psoriasis is a chronic inflammatory autoimmune disease that commonly affects both the skin and joints. Primarily driven by its pro-inflammatory nature, psoriasis often coexists with various components of metabolic syndrome, such as hyperlipidemia, hypertension, and obesity. Over time, these conditions may contribute to the onset of type 2 diabetes mellitus (T2DM), atherosclerotic disease, ischemic heart disease, or myocardial infarction.

The objective of the primary original article, "The Interplay between Bioactive Sphingolipids in Psoriatic Skin and the Severity of the Disease," which serves as the basis for this dissertation, is to evaluate the levels of specific sphingolipids—namely, CERs, SFA1P, SFA, SFO, and S1P—in both unaffected and psoriasis-affected skin tissue among patients with psoriasis.

The study included 17 healthy patients (11 men and 6 women) and 15 patients (7 men and 8 women) with active plaque psoriasis of varying severity. The mean duration of psoriasis was 24 years.

All the sphingolipid levels analyzed in this study (S1P, SFO, SFA, SFA1P, CERs) exhibited higher concentrations in psoriasis-affected skin compared to non-lesional skin in patients with psoriasis. Elevated levels of CER and SFO were also noted in the clinically unaffected skin of psoriasis patients compared to that of healthy individuals.

In the second original paper, titled "Crosstalk between Serum and Skin Sphingolipids in Psoriasis," we evaluated the correlation between sphingolipids present in the skin of psoriatic patients and those found in the serum of patients with psoriasis. The study comprised 20 patients with psoriasis and 28 healthy subjects. It demonstrated that serum levels of S1P, SFO, SFA, and SFA1P in psoriatic patients were significantly elevated ($p<0.05$) compared to the levels of these same sphingolipids in the serum of healthy subjects.

We observed negative Pearson's correlations between various variables in non-lesional psoriatic skin and the serum of psoriatic patients, all of which were statistically significant. Specifically, the correlations include tissue SFO vs. serum SFA, tissue SFO vs. serum SFO, tissue CERs vs. serum SFO, and tissue CERs vs. serum SFA.

A positive Pearson's correlation was evident between several variables in lesional psoriatic skin and the serum of psoriatic patients. Specifically, statistically significant associations were observed between tissue CERs and serum CERs, SFO in tissue and serum CERs, and SFA in tissue and serum CERs. There were no significant correlations between serum and skin sphingolipids in the healthy skin and serum of the control group.

The review article summarizes the current knowledge regarding the role of sphingolipids in the pathogenesis of psoriasis. The findings of numerous studies indicate that disrupted sphingolipid metabolism in psoriatic patients may serve as a connecting factor linking the pathogenesis of psoriasis with systemic comorbidities such as metabolic syndrome, cardiovascular diseases, and liver diseases.

Conclusions:

1. Patients with psoriasis vulgaris exhibit a distinct sphingolipid profile in affected skin (elevated levels of CERs, S1P, SFO, SFA, SFA1P) compared to unaffected skin and healthy individuals' skin.

2. Higher concentrations of sphingolipids (CERs, SFO) were found in the unaffected skin of psoriasis patients compared with the skin of the control group. This indicates the presence of lipid metabolism disorders and abnormalities even in clinically seemingly unaffected skin.

3. The observed correlations between selected bioactive sphingolipids in lesional skin and their levels in the serum of psoriatic patients, may suggest the influence of abnormal skin lipid metabolism on systemic changes.

4. Dysregulated sphingolipid metabolism in individuals with psoriasis may impact the occurrence and progression of comorbidities such as obesity, metabolic syndrome, liver disease, and cardiovascular disease.