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学位論文の題名
Bath-PUVA therapy improves impaired resting regulatory T cells and increases activated regulatory T cells in psoriasis

(PUVAバス療法は乾癬患者において低下したrestingの制御性T細胞(rTreg)を改善し、そして活性化制御性T細胞(aTreg)を増加させる)


論文審査担当者
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ABSTRACT

**Background:** Bath-psoralen plus ultraviolet light A (PUVA) therapy is an effective, safe, and inexpensive treatment for psoriasis. Psoriasis might be due to an unbalanced ratio of Th17 cells and regulatory T cells (Treg). The Treg functional ratio is significantly lower in patients with psoriasis compared with controls and is inversely correlated with the Psoriasis Area and Severity Index score\(^1\). We previously reported that bath-PUVA therapy significantly increases the number of Treg and restores Treg function to almost normal in most patients with psoriasis\(^1,2\).

**Objectives:**

Miyara et al. reported that CD4\(^+\) CD25\(^+\) Foxp3\(^+\) T cells can be divided into three subsets using the cell surface marker CD45RA\(^3\). CD4\(^+\) CD25\(^+\) CD45RA\(^-\) and Foxp3\(^\text{high}\) lymphocytes are called activated Treg (aTreg), and have the strongest suppressive activity. CD4\(^+\) CD25\(^+\) CD45RA\(^+\) and Foxp3\(^\text{low}\) lymphocytes are called resting Treg (rTreg), and have mild suppressive activity compared with aTreg. CD4\(^+\) CD25\(^+\) CD45RA\(^-\) and Foxp3\(^\text{low}\) lymphocytes are called non-suppressive T cells (non-Treg), and have no suppressive activity. We examined the effects of bath-PUVA therapy on three distinct Foxp3\(^+\) subsets.

**Methods:** We enrolled 15 patients with psoriasis and 11 healthy controls. We examined aTreg, rTreg, and cytokine-secreting non-suppressive T cells in peripheral blood obtained from the psoriasis patients before and after every fifth bath-PUVA therapy session.

**Results:** Levels of aTreg, which are considered to have the strongest suppressive activity in patients with psoriasis, were significantly increased in the early bath-PUVA therapy sessions, and then diminished. Levels of rTreg were lower in psoriasis patients
than in healthy controls, and increased during bath-PUVA therapy.

**Conclusions:** Bath-PUVA therapy induced aTreg and rTreg concomitantly with an improvement in the psoriatic lesions, suggesting a mechanism for the effectiveness of bath-PUVA therapy for psoriasis patients.

