Serum squamous cell carcinoma antigen in psoriasis: a potential quantitative biomarker for disease severity

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Objectives:

To explore serum biomarkers quantitatively in association with disease severity and treatment response in psoriasis patients.

Methods:

15 psoriasis patients were treated with adalimumab. At different visits before and after treatment, quantitative body surface area (qBSA) was obtained from standardized digital body images of the patients, and psoriasis area severity index (PASI) was also monitored. Serum squamous cell carcinoms antigen (SCCA) and tumor necrosis factor-alpha (TNF-α) were detected by using Microparticle Enzyme Immuno Assay and Enzyme Linked Immunosorbent Assay. The serum biomarkers were also tested in healthy volunteers as normal control. Receiver operating characteristic (ROC) curve analysis was used to explore the optimal cut-off point of SCCA to differentiate mild and moderate-to-severe psoriasis.

Results:

1. Efficacy. Figure 1. PASI (a, b) and qBSA (c, d) of psoriasis patients before and after adalimumab treatment. ADA, Patients received adalimumab; PBO, Patients received placebo.

2. The serum SCCA level in psoriasis group was significantly higher ($P < 0.05$) than in the normal control group. Table1. The level of TNF-α and SCCA in controls and psoriasis patients.

	TNF-α(ng/ml)		SCCA(ng/ml)	
	Mean±sd	Range	Mean±sd	Range
Controls	2.16 ± 0.84	0.9-3.3	1.34 ± 0.52	0.6-2.2
Psoriasis [#]	3.33 ± 4.57	0.9-18.1	17.45 ± 19.90*	3.4-69.4

[#] before treatment; * $P < 0.05$ in comparison with controls.

3. After treatment, the serum SCCA levels were significantly decreased ($P < 0.05$). Table 2. Serum SCCA levels at three visits

Group	N	Week 0	Week 3	Week 12
ADA	12	18.5 ± 21.2	11.4 ± 17.9	3.7 ± 5.4*
PBO	3	7.6 ± 6.6	6.1 ± 1.4	6.2 ± 0.4

* $P < 0.05$ in comparison with week 0. ADA adalimumab, PBO placebo

4. SCCA level was well correlated to PASI and qBSA. Figure 2. Scatter plot of SCCA-PASI (a) and SCCA-qBSA (b)

5. In ROC analysis, when taking PASI=10 or qBSA=10 as the threshold, an optimal cut-off point of SCCA was found at 2.0ng/mL with the highest Youden's Index. Fig.3 ROC curves of serum SCCA-PASI (a) or SCCA-qBSA (b) and serum SCCA level when setting PASI=10 (c) or qBSA=10 (d) as the threshold.

Conclusion:

Serum SCCA might be a useful quantitative biomarker for psoriasis disease severity.