Upregulation of Tumor Necrosis Factor Alpha-Induced Protein 3 mRNA in Mild Psoriasis Vulgaris

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It was with the utmost interest that we read the recent publication by Jiang et al. (1). The paper describes tumor necrosis factor alpha-induced protein 3 (TNFAIP3) mRNA expression levels in peripheral blood mononuclear cells from 44 patients with psoriasis vulgaris negatively correlated with the psoriatic area and severity index (PASI) and with the percentage of body surface area (BSA) affected by psoriasis. Furthermore, in comparison with the severe group and 30 healthy controls, expression of TNFAIP3 mRNA in the mild group was significantly upregulated.

In our study, the transcript levels of TNFAIP3 were determined in pairwise lesional and uninvolved skin from 20 patients with psoriasis vulgaris and healthy control skin from 10 healthy volunteers by SYBR Green real-time PCR. All of these skin samples were used with informed consent and approval from the Ethics Committee of Fudan University. On the basis of clinical classification of the American National Psoriasis foundation, 10 patients with psoriasis on less than 3% of their BSA were considered to have mild psoriasis (mean 1.5% BSA and PASI score of 4.4), while another 10 patients with psoriasis on more than 3% of their BSA were considered to have moderate to severe psoriasis (mean 23.8% BSA and PASI score of 18.5). Total RNA was isolated from the skin using the RNeasy Protect minikit (Qiagen, Hilden, Germany). The level of polymerase (RNA) II (DNA-directed) polypeptide A (POLR2A) mRNA was detected as an internal control for each sample (2). Primers used in real-time PCR were as follows: TNFAIP3 forward, 5'-CCAGAAAAACAGGGCTTCTTGACAC-3'; TNFAIP3 reverse, 5'-GCTGAGCTCATCTCAGTTGCTC-3'; POLR2A forward, 5'-GCAGAGAAGCTGGTGCTCCGA-3'; and POLR2A reverse, 5'-CACAGATGTTGGACTCGATGGT-3'. Real-time PCRs were performed using the default PCR cycle on a sequence detection system (ABI Prism 7900 HT, Applied Biosystems), and amplified cDNA was detected by SYBR green I dye (Qiagen GmbH, Hilden, Germany). Thermocycling conditions used for quantitative PCR were 1 cycle at 95°C for 10 min and a total of 40 cycles at 95°C for 15 sec, 56°C for 30 sec, and 72°C for 30 sec. Dissociation curve analyses were performed to confirm specificity of the SYBR green signals in each experiment. Quantification of relative amounts of genes of interest was performed using software (Sequence Detection Systems 2.0; Applied Biosystems). Real-time PCR assays were conducted in triplicate for each sample, and the mean value was used for calculation. Gene expression levels between different groups were evaluated by the paired t test or nonparametric Kruskal-Wallis test, which were performed using SPSS 11.5 software (SPSS, Chicago, IL).

Figure 1 indicated the TNFAIP3 relative expression levels in uninvolved skin versus lesions from patients with psoriasis vulgaris and in healthy skin from controls. Our results showed that TNFAIP3 mRNA expression levels between different groups have significant differences (P = 0.27), especially between lesions and healthy-appearing skin in the group with mild psoriasis (P = 0.03). However, there was no significant difference between lesions and healthy-appearing skin in the group with severe psoriasis (P = 0.91). Moreover, based on our limited skin samples, the transcript levels of TNFAIP3 in lesions did not show significant correlation with the percent BSA (r = -0.3096; P = 0.1841) and PASI (r = -0.1619; P = 0.4953).

Generally speaking, the transcript levels of target genes in peripheral blood usually consist with those in the majority of skin on body surface. In the group with mild psoriasis, healthy-appearing skin takes absolute advantage over lesions. Thus, from a different point of view, our data supported the idea that TNFAIP3 mRNA was highly expressed in patients with mild psoriasis vulgaris but not those with severe disease. We suggest that TNFAIP3 might belong to the immediate early genes for defense reactions which are involved in the pathogenesis of psoriasis vulgaris.

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We declare that we have no conflicts of interest.

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Volume 20, no. 8, p. 1341, 2013. Page 1341, column 2, line 2: “(P = 0.27)” should read “(P = 0.027).”