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Letter

Quantitative analysis of fetal microchimerism in Japanese women patients with systemic sclerosis

Hideyuki Murata, Takayuki Sumida

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To the Editor:

J. Lee Nelson et al.[1] have shown a quantitative difference in the amount of fetal DNA in the peripheral blood of women with systemic sclerosis (SSc), and have put forward the hypothesis that SSc may be caused by a graft-versus-host-like reaction induced by fetal cells in the mother. This was supported by the findings of Carol M. Artlett.[2] In contrast, our previous study[3] (in Japanese) demonstrated that there was no significant difference between the frequency of microchimerism in SSc patients and healthy subjects. In this study, to examine whether the number of fetal progenitor cells is related to the pathogenesis, the amount of male-specific DNA in peripheral blood leukocytes (PBL) was estimated by quantitative polymerase chain reaction (PCR) using the TaqMan probe method (Fig. 1). The primers specific for DYZ1[4] (positions 78–100, 3511–3573) and the TaqMan probe (positions 12–40) were used for quantification. We analysed the amounts of male-specific genes in DNA extracted from peripheral blood lymphocytes from seven Japanese women patients with SSc bearing the Y-chromosome, six healthy Japanese subjects with the Y-chromosome, and eight healthy Japanese women without children as controls. The quantities of Y-chromosome-specific DNA were described in arbitrary units. These units represent the amount of Y-chromosome-specific DNA in women, taking the amount of Y-chromosome-specific DNA in 10 ng of genomic DNA from the blood of one male as 10^7. The results showed that the amount of Y-chromosome-specific DNA in patients with SSc (18.3 ± 30.8, mean ± SD) was significantly higher than those in healthy subjects with a Y-chromosome sequence (2.11 ± 2.78) ($P < 0.03$) and in controls without children (0.23 ± 0.19) ($P < 0.03$). These amounts were compared using the Mann–Whitney *U*-test. These findings support the notion that a large number of fetal cells might induce clinical features of SSc, and indicate that a degree of microchimerism is one of the essential factors in the generation of SSc.

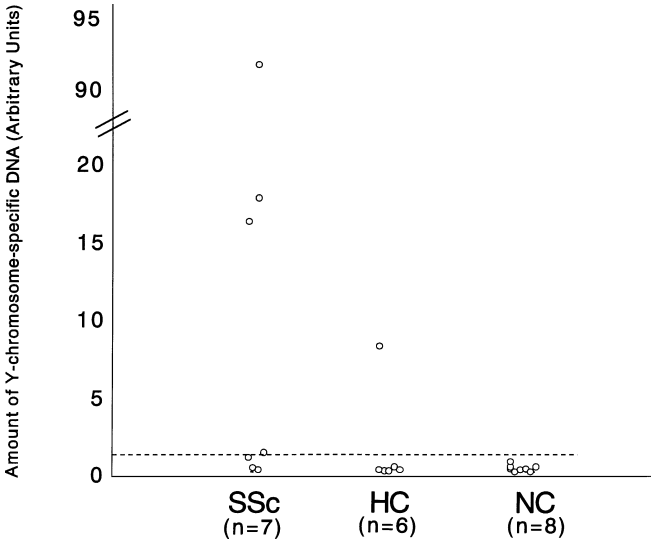

Fig. 1. Quantitation of male DNA in women with systemic sclerosis. The amount of male-specific Y-chromosome sequence was estimated by quantitative polymerase chain reaction with a TaqMan probe. DNA extracted from peripheral blood lymphocytes from seven Japanese women with SSc with male children (*SSc*), six healthy Japanese women with male children (*HC*), and eight healthy Japanese women without children (*NC*) were analyzed

H. Murata (✉) · T. Sumida
Department of Internal Medicine, University of Tsukuba, 1-1-1 Tenodai, Tsukuba 305-8575, Japan
Tel. +81-298-53-3186; Fax +81-298-53-3186
e-mail: hdmurata@md.tsukuba.ac.jp

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