Late-onset focal dermal elastosis has recently been described as a new clinical entity characterized by pseudoxanthoma elasticum-like eruptions and an accumulation of normal-appearing elastic fibres in the dermis. Elastin and collagen contents of the skin of 2 patients were 2- and 1.4-fold higher than in the skin of controls, respectively. A focal accumulation of elastin but not of fibrillin-1 was observed by immunohistochemical staining. The levels of type I and III collagen and elastin mRNAs isolated from cultured patient fibroblasts were elevated 2–3-fold compared with control fibroblasts. There was no significant change in the excretion of elastin peptides in the urine of patients and controls. These results suggest that the focal accumulation of elastic fibres in the patient skin may be related to overexpression of elastin rather than to altered degradation of elastin. Key words: elastosis; pseudoxanthoma elasticum; collagen. (Accepted October 1, 1998.)
significant accumulation of fibrillin-1 was observed (Fig. 1a and b).

RNA hybridization assays demonstrated that \( \alpha_1 \) (I), \( \alpha_2 \) (I) and \( \alpha_1 \) (III) collagen chain and elastin mRNA levels in the patient fibroblasts were higher than in controls, whereas the GAPDH mRNA level was unchanged (Fig. 2a). Quantitative determination revealed that type I and III collagen and elastin expression in the patient fibroblasts was elevated 3.0-, 2.3- and 2.1-fold, respectively (Fig. 2b).

The excretion of elastin peptides in urine was determined. There was no significant change in the excretion of elastin peptides between patients and controls (Table II), suggesting that the degradation of elastin in the patient body was unchanged.

**DISCUSSION**

We have demonstrated the accumulation of elastin in the lesional skin of the patients by immunohistochemical staining. The result was consistent with our previous report showing the accumulation of van Gieson positive fibres (1). This was confirmed by biochemical data that isodesmosine content, a biochemical marker of elastin, was elevated in the patients’ skin. It is noted that accumulation of fibrillin-1 was not found by immunohistochemical study in the focal lesion. Elastic fibres on electron microscopy consist of structurally different components, amorphous elastin and microfibrils. Fibrillin-1 is a major protein comprising microfibrillar components, which is rich in immature elastic fibres and diminishes with their maturation (16). The elastic fibres accumulating in the lesion may be mature fibres containing a low amount of microfibrils.

The elevation of collagen (hydroxyproline) content in the patients’ skin was less than that of elastin (isodesmosine) content (1.4-fold vs 2.0-fold). This may be because basal collagen content of skin is much higher (~72% of dry skin) than the elastin (~2% of dry skin) (17). Northern blot assays demonstrated that the expression of type I and type III collagen and of elastin in the patient fibroblasts were elevated. The combined results suggest that the skin lesion may be caused by the accumulation of both collagen and elastic fibres. We therefore now prefer to designate this disease “late-onset focal dermal fibrosis” rather than “late-onset focal dermal elastosis”.

Although our results suggest that accumulation of elastic fibres in the patient may be due to the elevated elastin production, excretion of elastin degradation products was normal in the patients. This may be because the elastin content of skin is lower than that of other tissues (17) and skin manifestations of the patients are disseminated papules localizing in specific regions of the body. The mechanism of enhanced elastin expression in this disease is not yet known. Since elastin expression in skin fibroblasts has been shown to be stimulated by sev-
eral factors including IL-1β (18), IL-10 (19) and TGFβ (20, 21), these factors may be involved in the pathogenesis of the disease.

REFERENCES