NEDD4-1 and PTEN expression in keloid scarring


Department of Plastic Surgery,
First Affiliated Hospital of Anhui Medical University, Hefei, China

Corresponding author: F. Zhu
E-mail: zhufei_l@yeah.net

Received January 9, 2015
Accepted June 8, 2015
Published October 28, 2015
DOI http://dx.doi.org/10.4238/2015.October.28.7

ABSTRACT. Keloid scarring remains a major problem in plastic surgery. The aim of this study was to determine the expression of the PTEN tumor suppressor and NEDD4-1 genes in keloid tissue and explore their effect on the formation of such scarring. Twenty keloid patients were enrolled in the study and underwent surgical removal of keloid tissue. No patient had received chemotherapy and/or radiotherapy prior to treatment. PTEN and NEDD4-1 mRNA expression was detected by reverse transcription PCR, while PTEN protein expression was assessed using immunohistochemistry. Our results showed that levels of PTEN were significantly diminished in keloid samples (P < 0.05), whereas those of NEDD4-1 did not significantly differ between keloid tissue and normal skin (P > 0.05). Furthermore, we found that NEDD4-1 expression is high and inversely correlated with that of PTEN in keloids. Our results suggest that the PTEN/PI3K/AKT pathway may play an important role in keloid formation and reduces PTEN expression in such tissue. Finally, although NEDD4-1 has previously been identified as a factor in keloid susceptibility, and the protein for which it encodes is known to degrade PTEN by catalyzing its polyubiquitylation, the detailed mechanism behind its involvement in keloid formation needs to be further studied.

Key words: NEDD4-1; PTEN; Pathological scar; Keloid