

Perspectives on the pharmaceutical treatment of  
hypertrophic scars and keloids

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Patients with hypertension are reported to have a higher incidence of hypertrophic scar and keloid development after highly invasive surgeries. Drugs that act on arteriosclerosis and vascular inflammation (*e.g.* angiotensin-converting enzyme inhibitors [ACE] and calcium blockers) have been reported to affect the development of hypertrophic scars. The authors previously reported a relationship between hypertrophic scarring and chymase, which is an enzyme that (like ACE) can cause human vascular tissue to produce angiotensin II. However, chymase antagonists cannot be used clinically at the moment because they are still in the drug development phase.

While dipeptidyl peptidase-4 (DPP-4) inhibitors are best known as antidiabetic agents, they also shape vascular inflammation. The administration of DPP-4 inhibitors to humans is expected to suppress wound fibrosis and to minimize hypertrophic scar and keloid formation.

We verified the suppressive effect of DPP-4 inhibitors on the formation of hypertrophic scars or keloids by using real world data from the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB). The study cohort consisted of patients who underwent median sternotomy in April 2014, as indicated by the surgical codes on their claims. Our study showed that DPP-4 inhibitors suppress the onset of hypertrophic scars or keloids after sternotomy surgery in humans.