Role of Prostaglandin D_2 for delayed wound healing in Streptozotocin-induced diabetic mice

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Delayed wound healing is a major problem in patients with diabetes, which significantly impairs their quality of life. Prostaglandin (PG) D_2 is a major inflammatory lipid mediator synthesized by hematopoietic PGD_2 synthase (H-PGDS) from PGH_2, a common precursor of all of PGs. In the present study, we investigated the role of PGD_2 in cutaneous wound healing in streptozotocin (STZ)-induced diabetic mice. C57BL/6 mice were injected with 50 mg/kg of STZ intraperitoneally daily for 5 days. Four weeks after the injection of STZ, a full thickness wound was created with an 8-mm diameter biopsy punch on the dorsal of mice. Wound healing was significantly decelerated and cutaneous H-PGDS mRNA was significantly increased in diabetic mice compared with non-diabetic mice. Daily administration of H-PGDS inhibitor for 14 days was significantly promoted wound healing in diabetic mice. These results suggest that PGD_2 involved in delayed wound healing in STZ-induced diabetic mice.