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Abstract: Abstract Diabetes has become an epidemic problem at global level and it has molecular impacts on various body tissues among which is the skin. Diabetes has been associated with adverse effects on wound healing to explore the expression of HSP90 in the skin of diabetic rats compared with control group. Twenty albino rats were randomly assigned into two groups, control group (N = 10) and diabetic group (N = 10). Diabetes was induced by peritoneal injection of streptozotocin (60 mg kg⁻¹) of body weight. After the end experiment, all animals were anesthetized with ether for 5 min, then blood were withdrawn from heart to measure glucose. Skin samples were taken and put in containers of formaldehyde (10%). Indirect immunoperoxidase staining was carried out to evaluate the expression of HSP90 in skin samples. The expression of HSP90 was assessed by using Adopyphotoshop Software Version 7.2. Photos for sections were taken and divided into pixels. The total number of pixels was computed and represented both colors (blue and brown), then the brown color (the color of the marker under study) was computed and divided by the total number of pixels. Data was represented as means and standard deviations while the relationships between variables were examined using independent t test. The significance was considered at alpha level <0.05. Glucose level in diabetic group was 330.5±63.60 and in control group was 101.3±4.57. The difference in means was statistically significant (p = 0.000). Diabetic skin samples exhibited expression level of HSP90 (0.578) which was significantly higher than that of skin samples in control group (0.15%) (p = 0.000). Diabetes has molecular impacts in wound healing through upregulating the expression of HSP90 in skin tissue