ROSE PLACENTA EXTRACT PROMOTES WOUND HEALING IN MICE FULL THICKNESS WOUND MODEL BY INCREASE OF EPIDERMAL GROWTH FACTOR (P135)

Kim Y. W.1, Moh S. H.2, Kim S. Y.2, Baek S. R.1, *Cheon Y. W.1

1 Gil hospital, Gachon university, Department of Plastic and Reconstructive Surgery, Incheon, South Korea
2 Bio FD&C, Incheon, South Korea

Introduction: Rosa damascena has been used for wound healing in folk medicine. [1] The goal of this study is to evaluate the effect of rose placenta extract in full thickness wound model in mice.

Materials and methods: Preparation of rose placenta extract The rose placenta extract was made using cultured rose placenta cells. Hot air dried callus cells which is collected from rose placenta were mixed with 50% ethanol and sonicated. After sonification, extracted specimen is centrifuged and supernatant was collected. The supernatant was filtered by 0.45μm membrane and freeze-dried at for 24 hours.

Animal experiments: A hundred mice were used. The full thickness wounds were made with 8mm diameter punch. [2] Rose placenta extract was injected to experimental group (n=50) and normal saline was injected to control group (n=50) just after creation of wounds. The injected amount of rose extract was 250μg per wound. The wounds were covered with occlusive dressing for 48 hours. The sizes of wounds were measured with digital photography and the specimens were harvested for histologic evaluation. Immunohistochemical stains were performed for vascular endothelial growth factor (VEGF), epidermal growth factor (EGF), transforming growth factor-β (TGF-β) and CD31. The vessel density was measured. A quantitative analysis using enzyme-linked immunosorbent assay for epidermal growth factor (EGF) was performed. All the evaluations were performed at 0, 2, 4, 7, 10 postoperative days (POD).

Result: The rose placenta extract significantly decreased wound size at POD#4, 7, and 10. (Figure 1) We can observe increased VEGF, EGF expression in experimental group compare to control at POD#2. The increase of EGF was also confirmed with ELISA at POD#2 (Figure 2). However, we can observe no significant differences of EGF at POD#4, 7, 10 between experimental and control group. The expression of TGF-β was decreased in experimental group at POD#7 and 10. The vessel density was increased in experimental group at POD#10.

Conclusion: Rose placenta promotes wound healing in mice full thickness punch model through increase of EGF release. Although more study for dose and safety was needed, rose placenta could be an alternative for wound healing.

References:
Figure 1. The sizes of wounds according to the time. We observed significant decrease in the experimental group at POD#4, 7, 10. (independent t-test, *p<0.05)

Figure 2. The EGF expression was measured with ELISA. We observed significant increase in the experimental group at POD#2. (independent t-test, *p<0.05)