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Studying the effect of cord blood platelet rich plasma (PRP) on expression of miRNA21 and miRNA 146a in fibroblast cells

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In recent years new approaches for wound healing are applied using new biotechnological and bioengineering methods which are very effective in regenerative medicine and tissue engineering. Grows factors play an important role in the healing process. Platelet Rich Plasma (PRP) is of the natural grows factors that are safe to use. Fibroblast cells are of the most effective cells in the wound healing process with the production of extracellular matrix and collagen to accelerate wound healing and also they are the most important cells in the proliferative phase. Studies have shown that microRNA can be used as a reducing agent or additive participate in the process of inflammation and regeneration of the epidermis, which is one of the most important stages of healing to participate speed up wound healing. In this study we treated fibroblast cells which were developed from human skin with PRP extracted from cord blood in different concentrations (1%, 5%, 10%, 15% and 20%). After 24h total RNA were extracted from treated fibroblast cells. Expression of miRNA21 and miRNA146a as effective miRNAs in fibroblast cells grows was detected using Real-time PCR after cDNA synthesis from extracted RNAs. Platelet Rich Plasma is a biological source of grows factors that affect fibroblast proliferation by enhancing miRNA21 and miRNA 146a as effective factors in wound healing. According to obtained results from this study fibroblast cells which were treated with 1%, 5% and 10% concentration of cord blood PRP showed expression of miRNA 21 in the 30-35th cycles of Real-time PCR and miRNA146a was expressed in a bit lower amount rather than miRNA21 in the 38-40th cycles of real-time PCR. As results showed, PRP stimulated expression of grows factors such as miRNA21 and miRNA 146a in fibroblasts and could be effective for enhance wound healing.

Biography

Mahdokht Mahmoodi has completed her MSc in Medical Biotechnology from Shiraz University of Medical Sciences and Bachelor of Physiotherapy from Shahid Beheshti University of Medical Sciences, Tehran, Iran. She is working in Burn and Wound healing research center, Shiraz University of Medical Sciences as Research Assistant in Tissue Engineering and Cell Culturer laboratory form 2015 till present.

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