Autologous PRP and PPP: A potential therapeutic tool for promoting hair growth

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Recently, autologous platelet-rich plasma has attracted attention in the various medical fields: including orthopaedic, plastic, dental surgery and dermatology for its wound healing ability. Furthermore it has been used clinically together with mesotherapy for hair growth promotion. The purpose of this study was to determine the effects of active platelet-rich plasma (PRP) and/or platelet-poor plasma (PPP) on the hair growth promotion invitro and its possible role as a potential therapeutic tool for promoting hair growth. PRP and PPP were prepared using a double-spin method and then activated with thrombin and calcium chloride. Activated PRP and PPP both stimulated dermal papilla (DP) cells migration with peak stimulation occurring in medium supplemented with 5% activated PRP. The activated PRP and PPP increased b-catenin luciferase activity, confirming the hair growth promoting effect of PRP and/or PPP. Additionally, activated PRP or PPP increased the expression of p-ERK, p-AKT, PCNA, FGF7 protein in DP cell. In summary, our results suggest activated PRP and PPP may be used as alternatives for promoting hair growth.

Key Words : platelet-rich, plasma platelet-poor plasma, hair growth