



Session PO2-11c - Reproductive Biology III

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F-256 - Human Platelet-Rich Plasma from Patients with Uterine Pathologies Contributes to Endometrial Regeneration: A Current Therapeutic Approach?

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Hall Maillot

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Abstract

Introduction: Platelet concentrates have been used in regenerative medicine, including the gynaecological field, along the last 2 decades. Platelet-rich plasma (PRP) is used to support tissue proliferation and regeneration due to the specific secretion of growth factors (as TGFβ, VEGF or PDGF). We aimed to verify if PRP from patients with uterine pathologies (endometrial atrophy (EA) and Asherman syndrome (AS)) could promote *in vitro* endometrial cell proliferation and regeneration in comparison with umbilical cord plasma (C+) or without treatment (C-).

Methods: Isolation of PRP from 3 patients with EA/AS based on 2 step centrifugation procedure was performed, and concentrates were analysed to evaluate the proteomic profile. We collected 6 endometrial biopsies from healthy donors and human endometrial stromal cells (hESCs) were isolated. We evaluated the effects of activated PRPs on cell proliferation, wound healing (WH) and migration. In all the procedures we established 5 conditions: PRP1, PRP2, PRP3, C+ and C-. After 48h viable hESCs in proliferation were measured by MTS assay. Also hESCs were grown to confluence, when the monolayer was lesioned. The lesion gap was evaluated (several time intervals) until its complete closure. Statistical analysis was performed to compare the effects of PRP versus controls.

Results: PRPs analysis showed specific protein profiles related to neovascularization and growth factors. MTS assay revealed that hESCs treated with PRP1, PRP2, PRP3 and C+ increased cell proliferation (39.2, 51, 40.5 and 90 %, respectively) in comparison to C-. Data from the 3 PRP treatments were statistically significant (p -value=0.0034) together with the C+ condition (p -value<0.0001). Regarding to WH, results showed a noticeable higher trend to cover the initial gap when wounds were treated with PRPs or C+.

Conclusion: The PRP from patients with uterine pathologies seems to be an effective treatment, rich in growth factors, enhancing hESCs proliferation and migration *in vitro*. These preliminary results suggest the potential use of PRP as an autologous and non-operative procedure for EA/AS patients to restore their own endometrium. SUPPORT: PI17/01039; PROMETEO/2018/137.