STUDYOF THE USE OF PLATELET RICH PLASMA IN THE TREATMENT OF PERIORBITAL HYPERPIGMENTATIONAND WRINKLES

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Introduction

Periorbital hyperpigmentation (POH) is a common problem encountered in practice. It presents as bilateral round or semicircular homogenous macules of brown or dark brown hue in the periorbital region.
The causative factors include genetic or heredity, excessive pigmentation, postinflammatory hyperpigmentation secondary to atopic and allergic contact dermatitis, periorbital edema, excessive vascularity, and shadowing due to skin laxity and tear trough associated with aging.
Periorbital wrinkles are caused by the muscular activity linked to facial mimicry, together with photoaging, cutaneous sagging and volume loss caused by osseous and subcutaneous tissue reabsorption and are considered an important component of facial aging.
Platelet-rich plasma (PRP) is an easy, efficient, and minimally invasive way to obtain a natural concentration of autologous growth factors (GFs). Production of PRP consists of centrifugation of autologous blood leading to separation and extraction of the plasma and buffy coat portion of the blood that contain the highest concentrations of platelets.

Aim of the work

The aim of this study was: 1- To assess the efficacy of platelet rich plasma (PRP) in the treatment of periorbital hyperpigmentation and wrinkles.
2-Compare between the effect of two injections of PRP prepared by single centrifugation (leucocyte poor preparation) at one month interval versus a single injection of PRP prepared by double centrifugation (leucocyte rich preparation) using a split face strategy in the treatment of periorbital hyperpigmentation (POH)and wrinkles.

Subjects and Methods

This is a therapeutic trial that was conducted in Alexandria main university hospital.
17 Patients with periorbital hyperpigmentation and/or wrinkles with age ranging from 20-60-year-old and skin type III-V (Fitzpatrick skin types) were recruited.
For each patient: In the right periorbital side 1-1,5 ml of PRP prepared by single centrifugation was injected intradermally followed by reinjection of another 1-1,5 ml of PRP prepared by single centrifugation intradermally 1 month later. In the left periorbital side 1-1,5 ml of PRP prepared by double centrifugation was injected intradermally. Then the patient was followed up after 6 months.

Assessment: Digital photos were taken for each patient before the injection then at 6 months follow up.
One blinded investigator was asked to judge the improvement and give a rating from 0-5 (0: no improvement and 5: excellent improvement).
Objective analysis of the POH and wrinkles using a specialized device before and after injections by a specialized dermatologist was done.
The patients were asked to rate their degree of satisfaction from 0-5 (0: totally unsatisfied 5: totally satisfied).

Results

Table 1: Comparison between Right and Left according to face analyser (%) in wrinkles (n = 17)

Face analyser (%)	Right	Left	Z	p
Before				
Min. – Max.	10.0 – 42.0	9.0 – 41.0	1.210	0.226
Mean ± SD.	26.65 ± 9.95	26.24 ± 9.38		
Median (IQR)	27.0 (20.0 – 35.0)	26.0 (19.0 – 33.0)		
After				
Min. – Max.	8.0 – 39.0	9.0 – 41.0	1.844	0.065
Mean ± SD.	24.41 ± 9.89	25.06 ± 9.52		
Median (IQR)	25.0 (17.0 – 30.0)	25.0 (18.0 – 31.0)		
p_1	<0.001*	0.002*		
Decrease	2.24 ± 1.15	1.18 ± 1.07	2.924*	0.003*

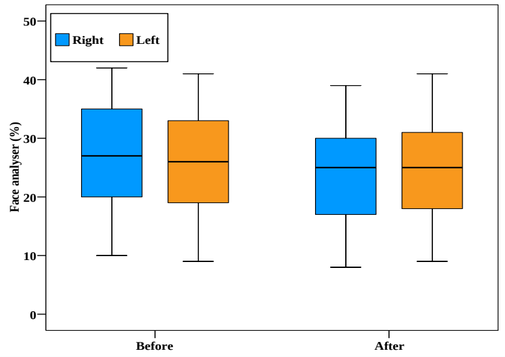

Figure 1: Comparison between Right and Left according to face analyser (%) in wrinkles (n = 17)

Table 2: Comparison between Right and Left according to patient satisfaction in pigmentation (n = 17)

Patient satisfaction	Right	Left	Z	p
Min. – Max.	0.0 – 5.0	0.0 – 5.0	3.207*	0.001*
Mean ± SD.	2.82 ± 1.42	2.12 ± 1.32		
Median (IQR)	3.0 (2.0 – 4.0)	2.0 (1.0 – 3.0)		

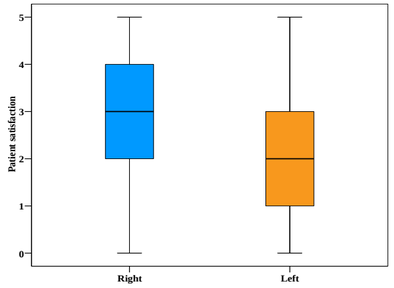

Figure 2: Comparison between Right and Left according to patient satisfaction in pigmentation (n = 17)

Conclusion

- Platelet rich plasma is a safe and efficient method for the treatment of periorbital hyperpigmentation and wrinkles.
- 2 sessions of PRP prepared by single centrifugation give better results than a single session of PRP prepared by double centrifugation.
- We need further studies on the number of sessions needed to reach optimum results and satisfaction for the patient.