

# Use of Autologous Platelet Rich Plasma (PRP) with F.U.E as a Medium to Reduce Risks of Scalp Hair Transplants & Micrografting

- Thai Medical Hair Center
- Bangkok Thailand

# Autologous Platelet Rich Plasma (PRP)

- Natural Proteins Stored in the alpha granules of platelets
- Released at the time of original injury
- Act Synergistically to stimulate cell growth and migration

# PRP Role in Hair Restoration

- Mitogens
  - Stimulate and increase division of a variety of cell types
  - Stimulate creation of:
    - Granulation tissue
    - Endothelial Cells – Capillaries
    - Epithelial Cells – Skin
- Chemo-attractants
  - Attract cells to wound site

# Can PRP enhance the outcomes of Hair Transplantation?

- If YES, in what ways?
- If YES, the number of prospective candidates may increase.

# Prior Studies Using PRP:

- Perez-Meza (PRP)
  - Reduced scalp redness
  - Reduced crusting
  - Reduced pain
- Reese (PRP)
  - Reduced forearm redness
  - Reduced crusting
  - Reduced swelling

# Prior Studies Using PRP:

- Rinaldi et al (Vascular Growth Factor)
  - Accelerated hair growth
  - Increased size of follicles
  - Accelerated revascularization of transplanted follicles
- Uebel (PRP)
  - Increased follicular unit yield by 15.1%  
( $p < 0.001$ )
  - Clinical significance – increased 480 hairs/every 100 cm<sup>2</sup> area.

# Study Objectives:

- Crusting- Shortened interval compared with control
- Scalp Erythema- Shortened interval compared with control

# Procedure:

- IRB approved.
- Sample size- 11 males. Norwood V or VI
- Randomized- 6 test, 5 control
- Blinded- patients and participating staff



# Procedure:

- Pre-Procedure photos
  - Baseline: normal
    - “0” on a 0-5 scale
- Post-Procedure photos
  - Worst Case
    - “5” on a 0-5 scale
- Photography
  - Standardized
  - POD 1, 3, 5, 7, and 10

# Procedure:

- SP-89 blade, vertically oriented.
- 25 FU/cm<sup>2</sup> pattern.
- Test follicles stored in 5cc PRP in 20cc's chilled saline.
- Control follicles stored in 25cc's chilled saline.

# Procedure:

## ■ Dressings-

- Test dressings-contained topical gelled PRP.
- Control dressings-contained topical vaseline.

# Statistical Analysis:

- Two sample t-tests assuming unequal variances between groups.

## Statistically Significant: ( $p < 0.05$ )

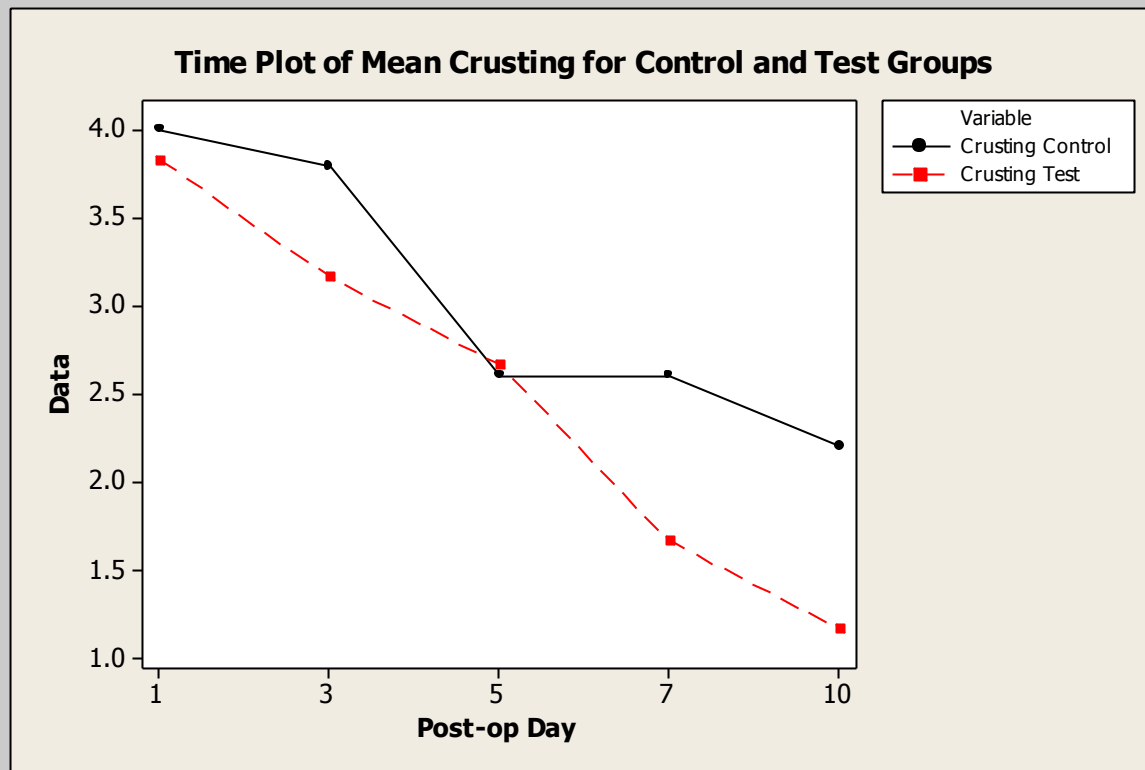
- Crusting:            POD #7        ( $p = 0.027$ )  
                              POD #10      ( $p = 0.011$ )
- Erythema:            POD #7        ( $p = 0.001$ )  
                              POD #10      ( $p = 0.000$ )

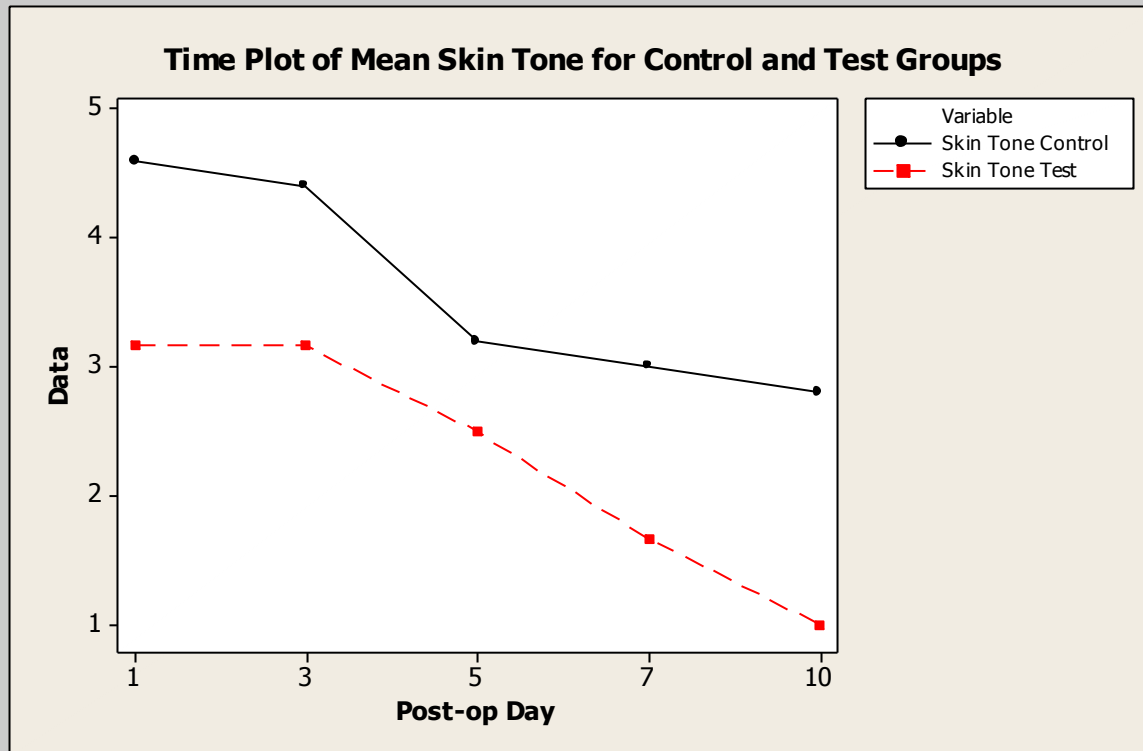
# Statistical Analysis:

- Multiple Regression Analysis- On average the test subjects fared better on each day.
- Crusting: (For any given post-op day) test group score improved by 0.27 points per day (0-5 scale).
- Erythema: (For any given post-op day) test group score improved by 0.65 points per day (0-5 scale).

The following two graphs illustrate the mean crusting values (Graph 1) and mean skin tone values (Graph 2) through time for the test and control groups. Note that after day 5 the mean scores for the test group drop more rapidly than the mean scores for the control group. As noted above, there are statistically significant differences in mean scores between the test and control groups for both crusting and skin tone. This is evidence that there is, on average, more rapid normalization of the test subjects' scalps compared to the control subjects' scalps.

Graph 1





Graph 2

Statistical analysis details:

All hypothesis tests conducted were two-sample t-tests assuming unequal variances between groups. All tests and graphs were computed in Minitab Version 15.

# Conclusions:

- Increasing amount of consistently positive evidence among several investigators suggesting PRP and FUE Micrografting provide significant advantages in hair restoration surgery.
- Evidence based medicine: EBM
  - Implies the use of the current best evidence in making decisions about the care of our patients.
  - The availability of reliable, valid information is essential for the practice of EBM.



# Conclusions:

- Thai Medical Vacation has led hair transplant surgery to evolve from plugs to follicular units and microscopes.
- In the future, the addition of PRP may be considered the new “Gold Standard” in hair transplant care.
- FDA approval recently awarded for the use of PRP to heal chronic wounds.

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