12th Asian Pacific Society of Periodontology Meeting
in conjunction with the 57th General Session of Korean Academy of Periodontology

Contemporary Concepts in Periodontology and Implant Dentistry

September 22-24, 2017
The-K Hotel SEOUL Convention Center
Seoul, KOREA
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Description of red blood cells and white blood cells in inflammatory response after implant placement coated with platelet rich plasma

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Introduction
Background: The autologous platelet rich plasma (PRP) usage as the coating material of the implant can reduce the rejecting reactions of the body, so that the occurring inflammation reactions does not last long.

Objectives
The objective of the study was to examine the presence of different features of red blood cells and white blood cells in the inflammatory response post placement implants coated with PRP.

Methods
The research method with post-test only control group design used 24 male rabbits divided into two groups, 12 rabbits treated with PRP coated implants, 12 others as control, on the femur bone of the rabbit, each group was examined as time series at day 1, 3, 7, and 14. Observations were made using a hematology analyzer and microscopically with the parameter of the neutrophil numbers.

Results
Repeated ANOVA test showed the amount of erythrocytes and hematocrit values increased in the PRP coated implants group. In the General Linear Model test of neutrophils cells the p value is 0.013 (p <0.05).

Conclusion
PRP as implant coating became potential to accelerate the wound healing process after the implant placement.
DESCRIPTION OF ERYTHROCYTES AND LEUKOCYTES IN INFLAMMATORY RESPONSE AFTER IMPLANT PLACEMENT COATED WITH PLATELET RICH PLASMA

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ABSTRACT

Background: The autologous platelet rich plasma (PRP) usage as the coating material of the implant can reduce the rejecting reactions of the body, so that the occurring inflammation reactions does not last long. The objective of the study was to examine the presence of different features of erythrocytes and leukocytes in the inflammatory response post placement implants coated with PRP. This research is experimental laboratory with post-test design only control group design method. Platelet rich plasma is made by taking 5 ml of sample blood, put in a tube that has been given anticoagulant, then blood is centrifuged 2 times at 3000 rpm, for 15 minutes until plasma fluid is separated from blood cells. Samples were 24 male rabbits divided into two groups, 12 were treated with PRP coated implants, 12 others were not in the bone of the rabbit femur, and each group was examined according to the time series in day 1st, 3rd, 7th, and 14th day. Observations were made using a hematology analyzer and microscopically with the number of neutrophil parameters. Result: Repeated ANOVA test showed the amount of erythrocytes and hematocrit values increased in the PRP coated implants group. In the General Linear Model test of neutrophils cells the p value is 0.013 (p <0.05).

Conclusions: Implant coating with PRP increases the number of erythrocytes and decreases the number of neutrophils in leukocytes.
INTRODUCTION

PRP have been used since 1985 to heal wounds, because it containing platelets and blood clotting factors in large numbers, also has a growth factor agonist. Platelet Rich Plasma (PRP) contains numerous growth factors to promote wound healing and angiogenesis. Growth factor released by thrombocytes on degranulation process, namely platelet-derived growth factor (PDGF), transforming growth factor (TGF), insulin like growth factor (IGF) and epidermal growth factor (EGF). PRP is a rich source of growth factors and promoted significant changes in monocyte-mediated proinflammatory cytokine/chemokine release. Inflammation and repair is a continuous process of wound healing involving inflammatory cells. Such platelets play a key role in wound healing, the picture of erythocytes and leukocytes can be a source of information to determine the health condition of an individual's body due to the connection of blood with other tissues in the body. The use of autologous platelet rich plasma (PRP) as an implant coating material can reduce rejection reactions from the body so that inflammatory reactions that occur do not last long. The objective of the study was to investigate the presence of different features of erythocytes and leukocytes in inflammatory response post-coated implants implanted with PRP.

METHOD

As sample is used male rabbits, aged 4-8 months, 1500 - 2000 grams weights as a sample, divided into 2 groups, control and platelet rich plasma as treated group. Platelet rich plasma is made by taking 5 ml of sample blood, put in a tube that has been given anticoagulant, then blood is centrifuged 2 times at 3000 rpm, for 15 minutes until plasma fluid is separated from blood cells. As sample of blood is taken from vena auricularis, then examined the number of erythrocytes, hemoglobin value and hematocrit by using hematology analyzer, to examine the leukocytes can be seen on neutrophils with blood smear. Samples were anesthetized using
Ketamine (100 mg / ml) and xylazine (2%). The surgical phase was implantation implant with PRP in femoral bone of the sample, other side in control group implantation with no PRP. 3 hours after implantation, some blood is taken from sample. Furthermore, same way on days 3rd, 5th, and 7th for examine the number of erythrocytes, value of hemoglobin, hematocrit level, and the number of neutrophils in leukocytes. All result data of this research on erythrocytes were analyzed by using Repeated ANOVA with Univariate Test to know the difference in each treatment at the real level p <0.05. On leukocytes examination was analyzed by general linear test to compare the average number of neutrophils between days 1st, 3rd, 5th, and 7th between that groups.
RESULT

Table 1. Number of erythrocytes (million / mm³) in the implants coated with rich plasma platelets and implants without platelet rich plasma coated

<table>
<thead>
<tr>
<th>DAYS</th>
<th>IMPLANT WITH PRP (million/mm³)</th>
<th>IMPLANT WITHOUT PRP (million/mm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.92 ± 0.41^a</td>
<td>4.28 ± 0.75^a</td>
</tr>
<tr>
<td>3</td>
<td>3.82 ± 0.19^a</td>
<td>4.50 ± 0.52^a</td>
</tr>
<tr>
<td>7</td>
<td>4.08 ± 0.10^a</td>
<td>4.05 ± 0.40^a</td>
</tr>
<tr>
<td>14</td>
<td>5.56 ± 0.15^a</td>
<td>3.99 ± 0.11^a</td>
</tr>
</tbody>
</table>

Repeated Test Anova with univariate test, no significant comparison (p> 0.05)

In Table 1, the implants coated with platelet rich plasma are increasing daily, the number of erythrocytes increases, while the implants are uncoated with platelet rich plasma the number of erythrocytes decreases. The rate of inflammatory response that occurs is seen in the calculation of hemoglobin value in experimental animals after receiving treatment of rich platelet plasma implants and without platelet rich plasma coating.

Table 2. Hemoglobin levels (g / dL) in the implants grouped with rich plasma platelets and implants without platelet rich plasma coated

<table>
<thead>
<tr>
<th>DAYS</th>
<th>IMPLANT WITH PRP (g/dL)</th>
<th>IMPLANT WITHOUT PRP (g/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.56 ± 0.55^a</td>
<td>8.00 ± 1.68^a</td>
</tr>
<tr>
<td>3</td>
<td>7.63 ± 0.55^a</td>
<td>8.23 ± 1.95^a</td>
</tr>
<tr>
<td>7</td>
<td>7.70 ± 0.26^a</td>
<td>8.03 ± 0.90^a</td>
</tr>
<tr>
<td>14</td>
<td>9.46 ± 0.35^a</td>
<td>7.60 ± 0.55^a</td>
</tr>
</tbody>
</table>

Repeated Test Anova with univariate test, no significant comparison (p> 0.05)

In Table 2, the results showed that the calculation of implants coated with platelet rich plasma
increased daily, hemoglobin values increased, while implants without coated with platelet rich plasma the value of hemoglobin was decreased. To determine the level of inflammatory response that occurs, the calculation of hematocrit level in the experimental animals after treatment of implantation plated coated platelet rich plasma and without platelet rich plasma coated.

Table 3. Hematocrit level (%) in the implant group coated with rich plasma platelets and implants without platelet rich plasma coated

<table>
<thead>
<tr>
<th>DAYS</th>
<th>IMPLANT WITH PRP (%)</th>
<th>IMPLANT WITHOUT PRP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23,86 ± 2.02a</td>
<td>26,13 ± 2.19a</td>
</tr>
<tr>
<td>3</td>
<td>23,56 ± 1.55a</td>
<td>29,23 ± 1.76a</td>
</tr>
<tr>
<td>7</td>
<td>25,80 ± 2.72a</td>
<td>28,10 ± 1.99a</td>
</tr>
<tr>
<td>14</td>
<td>31,30 ± 0.98a</td>
<td>27,33 ± 0.55a</td>
</tr>
</tbody>
</table>

Repeated Test Anova with univariate test, no significant comparison (p>0.05)

In leukocytes examination with the number of neutrophil cell aims to determine the level of inflammatory response that occurs in experimental animals after the implantation of rich platelet plasma implant and control group, on the inflammation of leukocytes migration to the inflammatory area.

Table 4. Comparison the number of neutrophil (%) between treatment group and control group

<table>
<thead>
<tr>
<th>DAYS</th>
<th>IMPLANT WITH PRP (%)</th>
<th>IMPLANT WITHOUT PRP (%)</th>
<th>P value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>average ± sb</td>
<td>average ± sb</td>
<td>0,013*</td>
</tr>
<tr>
<td>1</td>
<td>54,4667 ± 3.57258a</td>
<td>68,9333 ± 1.69214b</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>54,4667 ± 2.9955a</td>
<td>83,6333 ± 3.50190b</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>44,3000 ± 0.91652a</td>
<td>81,6000 ± 3.51710b</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>44,0667 ± 3.52326a</td>
<td>68,1667 ± 9.34737b</td>
<td></td>
</tr>
</tbody>
</table>

* Normality Test Data: Shapiro-Wilk Test; p>0.05; normal distribution data
a Normality Test Data: Shapiro-Wilk Test; p<0.05; abnormal distribution data
*General Linear Model Test; p<0.05; significant
The ratio number of neutrophils between implant coated platelet rich plasma and the control group showed that the p value was 0.013 (p <0.05), meaning that there was a significant difference between the mean number of neutrophils between the implants coating platelet rich plasma and the control group on day 1st, 3rd, 5th, and 7th day of treatment.

DISCUSSION

Coating of implants with rich plasma platelet material in the femoral inflammatory process in animal experiments showed an effect on the number of erythrocytes, hemoglobin values, hematocrit level and the number of neutrophils. In the 7th and 14th day examination control group the number of erythrocytes, hemoglobin values, hematocrit level decreased back to normal level. It can be concluded that the longer the day, the number of erythrocytes, hemoglobin values and hematocrit level in the treatment group coated with platelet rich plasma increased compared with the control group. Based on the average number of neutrophils the control group increased the number of neutrophil leukocytes occurring from 1st day to the 3rd day, that’s indicate an inflammatory process, with increased capillary permeability, and neutrophil leukocyte migration to the inflammatory zone10. Observation the number of neutrophil on days 5th and 7th indicates a decrease in the number of neutrophil leukocytes compared to days 1st and 3rd but still within a high value range, this condition indicates a chronic infection because the number of abnormal neutrophils with hypersegmentation is called right shift that is increase of neutrophil cell until 7th day so that chronicity that happened in control group not yet entering phase of proliferation, this resulted long healing process of wound after implantation9. The results showed that there was a difference of implant coating with platelet rich plasma with control group to the wound healing process post implantation on the inflammatory process inside the femur of rabbit animal. Understanding of the biological rationalization of platelet rich plasma to find out how the role of platelets in wound healing.
Platelet rich plasma initiates wound repair through the release of growth factors that work locally. Growth factor helps healing through withdrawal of undifferentiated cell. Platelet rich plasma works by degranulation of granules in platelets containing synthetic growth factors. The secretion of growth factor is actively initiated by the blood clotting process and occurs within 10 minutes of freezing. More than 95% of pre-synthesized growth factors are secreted within 1 hour. With so many growth factors contained in it, platelet rich plasma accelerates endothelial, epithelial and epidermal regeneration, stimulates angiogenesis, stimulates collagen synthesis, accelerates soft tissue healing, reduces scarring of the skin to stimulate wound healing, and reverses the inhibition of wound healing caused by glucocorticoids. It is also an adhesive fibrin with hemostatic function. Because it is an autologous material, it is a biocompatible, safe and effective material and platelets containing 7 active protein growth factors released in the healing process of activated wound in the form of platelet derived growth factor (PDGF), transforming growth factor beta 1 and beta 2 (TGF β 1 and 2), vascular endothelial growth factor (VEGF).

CONCLUSION

Differences between implantation with rich platelet plasma and without platelet rich plasma to the wound healing process after implantation of the inflammatory process on rabbit femur bone, microscopically there is a difference of number of erythrocytes, hemoglobin, hematocrit and the number of neutrophil in leukocytes. The longer the day, the number of erythrocytes, hemoglobin value and hematocrit level in the rabbits grouped with platelet rich plasma increased compared to the control group.

In microscopic examination of leukocytes on implants with platelet rich plasma showed decrease of inflammatory cells (neutrophils) on the 5th and 7th day, on day 1st and 3rd are still in the normal range. There is an average difference in the number of neutrophils in the implants
coated with platelet rich plasma with lower neutrophil counts than the control group, suggesting that implant coating with platelet rich plasma can be used as an implant coating to accelerate the wound healing process and suppress inflammation.

REFERENCE


4. Ostvar, O. Email Author, Shadvar, S. Email Author, Yahaghi, E. Email Author, Effect of platelet rich plasma on the healing of cutaneous defects exposed to acute to chronic wounds: A clinico-histopathologic study in rabbits(Article),. Diagnostic Pathology Open Access Volume 10, Issue 1, July 02, 2015, Article number 85