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Abstract
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Where authors have different addresses, use numbered superscripts to refer to each address provided. The format of authors' affiliations should be: 1. Department of ***, University of ***, City name, State name, Postal code, Country name. State the author for correspondence and include their research fields and email details.
A Total word count for the main body of the text (Introduction, Materials and Methods, Results and Discussion, Conclusion and Acknowledgements), word counts for each section plus the number of figures and tables must be stated on the front page.

Arrange research papers under the headings Abstract, Introduction, Materials and Methods, Results and Discussion, Conclusion, Acknowledgements and References. In the case of Modelling or Theory papers, include a heading of Description in place of Materials and Methods, to include description of the model or theoretical framework.

The Abstract for research papers, which must be usable as a stand-alone document, must not exceed 250 words and only one paragraph can it be contained, which should include the objectives, methods, conclusions, and ended with keywords. It should not contain citations of other papers. For reviews, keep to the word limit.

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Standard abbreviations do not need to be defined and include such terms as the immune terms IL-6, TNF-α; growth regulators such as VEGF; and statistical terms such as SD and ANOVA. There follows a short list of preferred standard abbreviations for cases where confusion is possible.

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Present at approximately twice the size that they will appear. Ensure that, after reduction, they will be compatible with the double-column format of the journal (column width of 80 mm; maximum printed size of 226 × 170 mm).

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With photographs, include any scale bars on the picture. Where a figure is made up of several photographs, these should be abutted unless this affects the clarity.

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We welcome colour figures but please note the current options available. We will then reproduce these figures in greyscale in the hardcopy, but in colour online. So if there are color figures in your paper, you can use different lines or symbols to instead of colors if necessary. But if you want to print these figures in colour, it will charge $5 for per figure.

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**References**

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Management of childhood glaucoma (CG) is challenging. In Saudi Arabia pediatric population, goniotomy and trabeculectomy are rarely successful.¹ Trabeculectomy has been reported to have a lower success rate in children compare with adults.²,³

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CONTENTS

Investigating the relationship between organizational climate and the personality characteristics of employees................................................................. 1-5
DOI: 10.15562/bmj.v6i1.387
Rooollah Askari, Tayebeh Zareh, Elham Tayefi, Fatemeh Sepaseh, Mohammad Amin Bahrami

Investigating the relationship between self-efficacy and quality of life in breast cancer patients receiving chemical therapy.................................................. 6-11
DOI: 10.15562/bmj.v6i1.358
Reza Moradi, Mostafa Assar Roudi, Mohammad Mehdi Kiani, Seyed Abdelhossein Mousavi Rigi, Mahan Mohammadi, Mohammad Keshvari, Milad Hosseini

The End-Tidal CO2 correlation with a decreased cardiac output measured by ultrasonic cardiac output monitor in intubated ICU patients........................................ 12-16
DOI: 10.15562/bmj.v6i1.372
Tjokorda Gde Agung Senopati, Made Wiryana, Ketut Sinardja, I Made Widnyana, Putu Agus Surya Panji, Warsito

Wudani leaf extract (Quisqualis indica linn) as traditional medicine to control the incidence of cattle worm................................................................. 17-22
DOI: 10.15562/bmj.v6i1.371
Ida Bagus Komang Ardana, Made Suma Anthara, Anak Agung Gede Oka Dharmayudha, Anak Agung Ngurah Subawa, D. K. Harya Putra

High level of serum cartilage oligomeric matrix protein and plasma interleukin-6 increase the risk of ultrasound-detected synovial inflammation in knee osteoarthritis.................................................. 23-30
DOI: 10.15562/bmj.v6i1.350
Betel leaf (Piper betle L.) gel extract effectively shortening bleeding time after deciduous tooth extraction .......................... 31-33
DOI: 10.15562/bmj.v6i1.374
Regina Tedjasulaksana, Maria Martina Nahak, Ratih Larasati

Effectiveness of zinc supplementation in treating dysmenorrhea ........................................ 34-37
DOI: 10.15562/bmj.v6i1.380
Aurora Marezkha Farrah, Binarwan Halim, Yostoto B. Kaban

Mesenchymal stem cell (MSC) as a potential cell therapy for immune related disease .......... 38-43
DOI: 10.15562/bmj.v6i1.378
Bambang Hadi Kartiko, Ferbian Milas Siswanto, Thomas Eko Purwata

The involvement of proinflammatory cytokines in diabetic nephropathy: Focus on interleukin 1 (II-1), interleukin 6 (II-6), and tumor necrosis factor-alpha (TNF-A) signaling mechanism ........................................................................ 44-51
DOI: 10.15562/bmj.v6i1.299
Dwiyo Anargha Sindhughosa, AA Gde Marvy Krisna Pranamartha

Correlation of estradiol serum levels with classification of osteoporosis risk OSTA (Osteoporosis Self-Assessment Tools for Asian) in menopause women ........................................ 52-55
DOI: 10.15562/bmj.v6i1.379
Eva Maya Puspita, M. Fidel Gani Siregar, Ichwanul Adenin

Tadalafil as new oral treatment for erectile dysfunction: a review ...................................... 56-59
DOI: 10.15562/bmj.v6i1.370
Bagus Komang Satriyasa

Iron deficiency in women of reproductive age of Pekutatan Subdistrict, Jembrana, Regency Bali: association with demographic profiles ......................................................... 60-67
DOI: 10.15562/bmj.v6i1.432
Ketut Suega, Indah Elyani

Factors related to the implementation of universal precautions by nurses in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado .................. 68-72
DOI: 10.15562/bmj.v6i1.458
Christie Wuisan, Starry H. Rampengan, Martha Korompis
Betel leaf (Piper betle L.) gel extract effectively shortening bleeding time after deciduous tooth extraction

Regina Tedjasulaksana,1* Maria Martina Nahak,1 Ratih Larasati1

ABSTRACT

Background: As an Indonesian traditional medicine, betel leaf is often used to stop nosebleed. An active substance in betel leaves which serves to stop the bleeding is tannin.

Objective: The aim of this study was to determine the effectiveness of the betel leaf ethanol extract gel shortened bleeding time after the evocation of deciduous teeth.

Method: This research was conducted at the Department of Dental Nursing Clinic; Health Polytechnic Denpasar. This study was experimental research design with Completely Randomized Post Test Only Control Group Design. The total samples of 27 respondents were divided into a treatment group and two control groups. Anterior deciduous teeth on the physiological loose grade 3 or 4 is extracted, then the tooth socket was applying by pure gel for group 1 to group 2, epinephrine gel and gel ethanol extract of betel leaf for group 3. The bleeding time is calculated from the first moment the blood out until there is blood on filter paper that is placed on the tooth socket. Data were statistically analyzed with descriptive test and comparability test with One Way Anova.

Result: The results showed bleeding time of pure gel groups was significantly different among epinephrine group and the group of ethanol extract of betel leaf gel (p< 0.05). Bleeding time of epinephrine group did not differ significantly with betel leaf ethanol extract group (p>0.05).

Conclusion: This means ethanol gel betel leaf extract can shorten bleeding after deciduous tooth extraction and it is suggested that the use of gel ethanol extract of betel leaves to cope with bleeding after tooth extraction.

Keywords: Ethanol gel betel leaf extract, bleeding time, deciduous tooth extraction.


INTRODUCTION

Bleeding is a complication that can occur after tooth extraction permanent or deciduous teeth. Normal bleeding time in humans between six to ten minutes and the child is four to eight minutes. The bleeding time is a parameter for the process of blood clotting vasoconstriction in the vascular phase and the formation of a temporary hemostatic plug at the platelet phase in the hemostasis process.

Bleeding can be solved by means of mechanical, thermal and chemistry. Chemistry actions can be done by means of pharmacotherapy and also topical sealants and adhesives, one of the drugs used in the pharmacotherapy to speed up blood clotting (hemostatic) is epinephrine as a vasoconstrictor. Epinephrine can affect systemic circulation.

Some plants traditionally known in Indonesia as a drug for stopping the bleeding is expected to be used as cheaper and safer hemostatic. One of the traditional medicines that are used to stop bleeding is a betel leaf (Piper betle L.). Betel in Indonesian traditional medicine is used as an antiseptic, antioxidant, fungicides, and hemostatic. Betel leaf serves as an astringent to stop bleeding in gingivitis and to heal mouth ulcers. In Indonesian traditional medicine, the betel leaf is used to stop the nose bleeding.

MATERIAL AND METHODS

This experimental research, was conducted at the Department of Dental Nursing Clinic, Health Polytechnic Denpasar with Completely Randomized Post Test Only Control Group Design. The total samples of 27 respondents were divided into a treatment group and two control groups. Incisive deciduous teeth one with grade 3 or 4 physiological mobility is extracted, then the tooth socket is put pure gel for group 1, epinephrine gel for group 2 and ethanol extract of betel leaves gel to group 3.

The bleeding time is calculated from the first moment the blood came out to no blood on filter paper that is placed on the tooth socket. Data were analyzed statistically using descriptive test, followed by a test for normality by using test Shapiro - Wilk and homogeneity test with variance test (Levene’s test of variance) as well as the comparability test with One Way Anova.

RESULTS

Descriptive test results to determine the mean bleeding time each group research the effectiveness of the ethanol extract of betel leaf gel in shortening
Table 1  Bleeding time mean for each group

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample</th>
<th>Bleeding time mean (seconds)</th>
<th>Deviation standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Gel</td>
<td>9</td>
<td>363.33</td>
<td>58.95</td>
</tr>
<tr>
<td>Epinephrine Gel</td>
<td>9</td>
<td>200.60</td>
<td>33.91</td>
</tr>
<tr>
<td>Ethanol extract of betel leaves gel</td>
<td>9</td>
<td>236.67</td>
<td>31.62</td>
</tr>
</tbody>
</table>

Table 2  One Way Anova Test Results

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>104466.667</td>
<td>2</td>
<td>52233.333</td>
<td>27.85</td>
</tr>
<tr>
<td>Within Groups</td>
<td>45000.000</td>
<td>24</td>
<td>1875.000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>149466.667</td>
<td>26</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3  Least Significant Difference Test of Bleeding Time within Groups

<table>
<thead>
<tr>
<th>Group (I)</th>
<th>Comparison group (J)</th>
<th>Mean difference (I-J)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Gel with  Epinephrine gel</td>
<td>136,667</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Ethanol extract of betel leaves gel</td>
<td>126,667</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Epinephrine gel with  Ethanol extract of betel leaves gel</td>
<td>-136,667</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Ethanol extract of betel leaves gel with Epinephrine gel</td>
<td>-126,667</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

bleeding time after the revocation of primary teeth can be seen in Table 1 below.

Table 1 shows that the longest bleeding time is in pure gel group which is 363.33 ± 58.95 seconds. Comparability test to compare the bleeding time mean between treatment groups with One Way Anova test is as follows in Table 2.

Based on table 2, Value of F = 27,858 and the probability value of this research is 0.000 (p<0.05). This means that the mean of bleeding time of the three groups is significantly different. Least Significant Difference test is done to know the difference of bleeding time within groups.

The test results showed that the mean bleeding time of pure gel groups differ significantly with epinephrine group and the ethanol extract of betel leaf gel group because the probability value of 0.000, which is less than 0.05. The mean bleeding time of epinephrine group did not differ significantly with betel leaf ethanol extract group because the probability value 0.877 is greater than 0.05.

The results showed bleeding time in pure gel group differ significantly with epinephrine group and the ethanol extract of betel leaf gel group because the probability value of 0.000, which is less than 0.05. This indicates that the test substance which is epinephrine gel and ethanol extract of betel leaf gel affect bleeding time by shortening the bleeding time as it has a hemostatic effect.

Bleeding time of epinephrine group did not differ significantly with Ethanol extract of betel leaves gel group because the probability value 0.877 is greater than 0.05. This means that ethanol extracts of betel leaf gel can shorten the bleeding time after the extraction of deciduous teeth.

DISCUSSION

Bettel leaves able to stop bleeding because these plants contain tannin. Tannin known to have astringent properties that may precipitate a protein on the surface of the cell so that the cell permeability can be decreased, causing superficial cell layer to tighten and shrink. This will produce local vasoconstriction of the capillaries so tannin is functioning as hemostatic. Tannin also precipitates the blood protein which is albumin. This protein deposition process will induce the synthesis of thromboxane A₂ to increase platelet aggregation, thereby accelerating the formation of platelet plugs while the blood vessels luka. Soltani et al research which use green tea as a topical hemostatic after the lifting of the permanent rear molars tooth with lidocaine 2% with epinephrine 1/80000 anesthetic showed the average bleeding time of 5.87 ± 1.76 minutes.

Hemostatic effect of a substance can be through a variety of mechanisms, including vasoconstriction of the blood vessels. The use of topical epinephrine will produce local vasoconstriction and hemostasis at bleeding from small vessels. Tannin in ethanol extract of betel leaf gel serves as a hemostatic and works as a vasoconstrictor through its astringent effect. Tannin may also increase platelet aggregation, thus forming a platelet plug which serves to stop the bleeding.

CONCLUSION

Bleeding time after the extraction of deciduous teeth with pure gel is 363.33 ± 58.95 seconds, with epinephrine gel is 200.60 ± 33.91 seconds and the ethanol extract of betel leaf (Piper betle L.) is 236.67 ± 31.62 seconds. Ethanol extract of betel leaf gel and epinephrine gel can effectively shorten the bleeding time after the extraction of deciduous teeth. Future studies are expected to increase the number of research samples to obtain more reliable results and effective concentrations of betel leaf extract which can provide maximum hemostatic effect needs to be investigated.
REFERENCES


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