The Effect of Green Tea (Balneotherapy) Towards Atopic Dermatitis in Asahan, Indonesia

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Abstract— Tea is a familiar drink in Asia, particularly in the Southeast Asia. One of the healthier tea is green tea in which contains natural antiseptic. The ingredients reduce the impact of sunburn such as itching or even swelling. In addition, the extract of green tea found effective in breast cancer, gastric cancer, lung, colon, rectum, liver, and pancreas. This study explore application of green tea (balneotherapy) in reduce itching of atopic dermatitis. Balneotherapy is known as a therapy in reduce itching. It prevents various diseases and improving health care with cold or arm green tea shower. The process begins with the immersion og green tea into water of patients with atopic dermatitis. The method of the study is quasi experimental with independent t-test. 40 respondents are divided into two groups, 20 respondents for treatment and 20 control group who lives in areas of district health center Asahan, Indonesia. Data was collected on June to August 2010. Respondents were identified for balneotherapy application. The respondents for treatment are instructed to take a bath with green tea in 10-20 minutes. After that respondents did shower with water that has spiked with green tea. Beside, for the control group did not do anything for itching. The result showed that there is a significant difference between the patients who did balneotherapy and the patients who did not balneotherapy. It revealed the patients with balneotherapy is experienced the itching reduction due to the atopic dermatitis. It can be concluded that green tea contains catechins as a healthy compounds, in which proved as a antioxidant power, four to five times higher than vitamin C and E.

Keywords: green tea, atopic dermatitis.

I. INTRODUCTION

Tea (camellia sinensis) is the most second consumed drink in the world after water, for instance, the green tea. It is because of the green tea main component is categorized as an antioxidant such as polyphenols, phytochemical substance, vitamin E and vitamin C. In case of polyphenols, it is classified as a powerful antioxidant. The compound will neutralize free radicals that cause cancer [3]. In addition, the green tea also contains epigallocatechin gallate (EGCG) for the cardiovascular and metabolic system maintain [11].

Eczema or dermatitis is the medical term for the skin inflammation affects parts of the body especially hands and feet [2]. The common type of the dermatitis is atopic eczema or atopic dermatitis. Atopic dermatitis is the disease mostly occurred in the community in which itching is the major complaint. In addition, the skin became increasingly painful and inflamed. These are the objective signs of atopic dermatitis [5].

In some cases, dermatitis will cured without any treatment, but some showed suffered of dermatitis effects. With a proper treatment, the disease can be controlled by reducing the recurrence rate [1]. The main goal of the treatment is to relieve itching so that the infection can be prevented [6].

A study conducted by Stephen (2007) found that the topical green tea for therapy is significantly remarkable for up to 90%. It is revealed the effectiveness for the case of psoriasis, skin dandruff and skin lesions associated with lupus. It showed the benefit in protecting the skin from the sunburn which triggering the skin cancer. In fact, a study by Kaseem (2008) asserted that polyphenols in green tea improve the antibiotics ability to fight resistant bacteria. This natural antioxidant is proved in reducing free radical damage.

Some of the green tea positive effects are reducing cancer risk, smoothing the skin, protecting skin from the sun exposure, keeping the blood pressure remained normal, concentration, youthfulness, losing weight and relaxation [13].

In addition, the application of green tea by showering the extract of green tea (Balneotherapy) is found effective in reducing the atopic dermatitis. However, this method remains unfamiliar regarding some factors such as race, cultural influences, education level, income, and age affect the level of knowledge one possesses about dermatitis that can affect people’s health behavior [12].

II. METHOD

This study is a quasi-experimental method with independent t-test. 40 respondents, which were divided into two groups: 20 respondents were exposed with balneotherapy and 20 respondent are control group without balneotherapy. The research instrument divided into two: demography data
and the form with questions in itching scale symptoms experienced by patients with atopic dermatitis. The research was conducted in June-August 2010. The Balneotherapy procedures for the first group begin with the placement of green tea in hot tub water for ten to twenty minutes or until the water turn into golden brown or dark brown. Then lift the tea bag and adjust the temperature of bath water. Begin a shower or bath for 30 minutes. This is repeated for 2 weeks. There is no such treatment for the second group.

III. RESULT

TABLE I. DISTRIBUTION OF ITCHING LEVELS PRE AND POST TESTS IN EACH GROUP (N = 20)

<table>
<thead>
<tr>
<th>NO</th>
<th>The Level of itching</th>
<th>Treatment Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Test (%)</td>
<td>Post Test (%)</td>
<td>Pre Test (%)</td>
</tr>
<tr>
<td>1</td>
<td>Mild</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>Severe</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>Pain itching</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

According to the table above, it shows that the frequency of itching levels in the treated group after the balneotherapy treatment is achieved mild itching (15%), moderate (35%), itching in severe (40%) and pain (10%). Whereas in the control group after observed, respondents who experienced itching in mild (10%), moderate (40%), severe (45%), and pain itching (5%).

TABLE II. THE TEST FOR A DIFFERENCES OF EACH GROUP PRE AND POSTTREATMENT (N = 20)

<table>
<thead>
<tr>
<th>Group</th>
<th>pre - post experimental group</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>pValue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td></td>
<td>5.050</td>
<td>0.999</td>
<td>22.614</td>
<td>19</td>
<td>0.000</td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td>-400</td>
<td>0.681</td>
<td>-2.629</td>
<td>19</td>
<td>0.017</td>
</tr>
</tbody>
</table>

Based on data, it showed the significant result for group 1 with <0.05, it yielded that there is a significant in reducing itching for patients with atopic dermatitis. There is a difference between the experimental and control groups, with the level of sig. (2-tailed) = 0.000 with a level of significant (α) = 0.05 (5%). Sig. (2-tailed) level of significant (0.00 <0.05). The difference of both groups was marked by a decrease in itching after balneotherapy treatment with green tea in patients with atopic dermatitis.

IV. DISCUSSION

Dermatitis is diseases, which affect the pathology of the skin. Pathology at the clinical level is described primarily as a skin irritation characterized by red, flaky, cracks or tiny blisters skin. It can produce a severe itching and worsen with hands scratching [5]. The effect of balneotherapy reduce the inflammation process in dermatitis. In addition, balneotherapy enhance the skin’s positive reactivity on the skin coat hydrophilic. It is almost no side effects found during and after treatment. The high effectiveness of balneotherapy for skin diseases is revealed in psoriasis and atopic dermatitis. Therefore, balneotherapy is useful for the treatment of refractory cases of atopic dermatitis [8].

Craig and Tiffany [4] mentioned seven components of green tea. Four of them contains polyphenol catechins, which act as a powerful antioxidants, such as epigallocatechin-3 Gallat (EGCG), epigallocatechin (EGC), and epicatechin-3 Gallat (ECG). EGCG is the most powerful one with 100 times powerful than vitamin C and 25 times than vitamin E. The main benefit of green tea is as bioactive components, such as polyphenols. It is also found bioactive compound called L-teanin. It is a unique amino acid in the tea plant and it’s component produce exotic flavor, stress reduction, memory maintain and relaxation [6].

Polyphenol is water solution and include in-group of flavonoids, which produce natural free radical [6]. It is commonly found in fruits, vegetables, coffee, chocolate and wine. Polyphenol also found as a protector against cancer and a potent antioxidant [7]. This compound will neutralize free radicals that cause cancer. It was found that topical application or oral consumption of green tea protects against inflammation, chemical carcinogenesis and photocarcinogenesis [7]. Green tea has been shown in blocking mediator in inflammatory processes. It also appears that there is inhibition of biochemical markers of chemical carcinogenesis, inhibition of UV-induced oxidative stress, and prevention of UV-induced immunosuppression [6]. Green tea also protects against psoralen- UV-A-induced photochemical damage to the skin [10]. The benefits of green tea can be sensed by using it for a shower. It’s substance of polyphenols can be tan the skin as it reduces the itching and pain on the skin.

Research conducted by Kubota et al (1997) stated that balneotherapy is useful for the treatment of refractory cases of atopic dermatitis. It can be used with a wide lesion and relieve inflammation with itching sensation [9]. The water temperature should be comfortable and long soaking bath therapy cannot be longer than 30 minutes due to immersion. The process tends to cause skin maceration.

V. CONCLUSION AND RECOMMENDATION

The research showed that the reduction of itching in patients with balneotherapy is higher than the reduction in itchy patients without balneotherapy. From the t-test results can be concluded that there is the influence of balneotherapy in minimizing itching of atopic dermatitis. It is need to combine between pharmacological and non-pharmacological management in nursing practice to reduce the itching and prevent recurrence of itching. Therefore, it minimizes the
possibility of pharmacological effects to the body. It is suggested that balneotherapy for dermatitis treatment can be determined. It is need to promote balneotherapy in nursing practice and socialize the treatment to the society.

acknowledgement

The authors appreciate to people who support this research fully; Aferlita Siallagan S.Kep and all staff of District Health Center Sei Kepayang, Asahan, Indonesia, for research support. Many thank to subjects who participated in this research.

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