The study of effect aromatherapy on the anxiety rate and cortisol plasma change on hemodialysis patients

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ABSTRACT: The annual costs for health caring patients with renal disease is more than 21.3 billion dollars and the hemodialysis is the most common and the most expensive method for curing it, that is introduced on the world. For this, this research has done, to study the effects of aromatherapy, on anxiety rate, of hemodialysis patients. Based on cortisol plasma viscosity changes. In this study, that is of single blind clinical trial, we used of target sampling, and census on hemodialysis patients in Ganjavina Hospital of Dezful, related to Dezful medicine university. For whom that, use lavender essence on 3 odd days, the essence was put on a cloth (1 drop each time) and stick it to their cloth collar, the patient were asked to breath normally, and continue breathing for 15 minute. After the end of each week, the blood sample were gotten and were delivered to laboratory. The gathering tools for dates including: patient's selection from the letter of satisfaction, demographic, characteristic form, Spielberger anxiety questionnaire and blood sample, for measuring cortisol rate in blood. Average numbers of cortisol serum rate of hemodialysis patients in control and intervention group before aromatherapy isn't somach different (18.88 against 20.12). Also there isn't somuch difference, between the average numbers of first and second cortisol after aromatherapy than the average numbers, before aromatherapy. (19.06 against 21.07) and (20.12 against 19.37) but on average numbers, of third cortisol after intervention of these 2 groups, there isn't clearly difference, (20.60 against 16.44) that is difference is useful for intervention group to decrease third cortisol numbers than the control group after aromatherapy.

Key words: aromatherapy, hemodialysis, anxiety, cortisol

INTRODUCTION

The chronic failure is, one of the current illness in human, that, affects on 2-3 percent of the people, on the world, at this moment (Asti et al., 2006). This disease puts on the society, heavy economic bars, because it appropriats, about 10% of curing costs to its self, and is one of the most causes of mortalities and disabilities around the world. (Bharkatiya et al., 2008; Brunner et al., 2010) There are three current methods for curing it. And replacement for the renal including: hemodialysis, peritoneal dialysis and renal transplantation (Cabness et al., 2005) The annual costs for health caring patients is more than 21.3 billion dollars and the hemodialysis is the most common, and the most expensive method for curing it, that is introduced on the world. (Cukor et al., 2008) The hemodialysis changes patient and his/her family’s life style. The needed time and costs for dialysis and medicine’s cost and chronic nature disease, can cause to inefficiency, despair, fault felling and depression. Maybe, it would difficult for the patient, his/her spouse and family to express their nervousness and negative feelings. If they don't divulge their feelings, it maybe causes to depression, despair and trying to suicide. Suicide will increases in dialysis patients (Davis et al., 2005).

However these feeling seem to be natural and common, but they can break up the patient existence. They maybe need to consultation or psychotherapy. Sometimes the depression and anxiety need to cure by antidepression and anxiety medications.

Furthermore, the dialysis prepares the patient’s existence issue, but it also takes into tension for them (Espinozall). As komar and al (2003) expressed, these various tension affect on social—psychotic and physical function of them (Gargia FW. Et al. 2008) The exist complex curing method, reduce the dialysis patients activities.
for several times ,and cause to losing their independence ,financial tension ,changing roles ,changing their images. from themselves reduce self-respect and to be scattered their marriages , and also the social –psychotic problems (anxiety , depression , social seclusion , lonely and despair ) among these people ,maybe cause to create separately sensation and seclusion ,and all of these family members and perpetuity cares on their environment (Gedney et al., 2004 ). So these make anxiety ,that is a warning sign ,and because oozing of adermon corticotropichormon ,that is a neurohormon with steroid concentrations and affects directly on target cells )adrenaline gland of renal (, it increases to respond ,to kinds of physical and psychotical anxietive factors, to creat body homeostasis. So if for every reasons like renal ,mental and ect. Illness the body can't get the hormons setting to first condition, it will cause to get serious physical and psychotical disease. The study of cortisol rate )5-23mcg/dl for natural rate ( gives us useful information a bout it (Han et al., 2006 )

Anxiety ,is one of the most common psychotical symptoms in hemodialysis patients . different factors ,cause to increasing anxiety rates ,in hemodialysis patients , for instance :curing period (Hoya et al., 2008 ) sex, that in the women is 2 time more than the men (Hur et al., 2005 ) . The age ,that in some resources , it has been reported a meaningful relation between increasing age and increasing anxiety (Itai et al., 2000 ) . Hemodialysis patients anxiety causes to get frequent disease ,confination to bed , increasing mortalities costs .

( Kanany et al., 2011 ) As so as the cobness and al2005. showed in their research ,that the anxiety and depression increase mortality and confination in hemodialysis patients (Kang-Ming et al., 2011 ) ,and if this problem isn't controled it decrease the remedy team 's attempts and the works quality and individuals satisfaction of them , ( Kaplan&Sadok’s synopsis of psychiatry, 2008 )also affects on patient 's life. So preventing of anxiety and reduction it are nessecrey cares for this disease . As so the researches show ,the people orient more to complementary medicines,so using of aromatherapy is become current on different medical and nursing issues .

That this is one way of complementary medicines . ( Kaplan&Sadok’s synopsis of psychiatry, 2005 )The perfumetherapy ,that in 1928 called by Renee moriss Gathe foss. ( Khalighi sigaridi et al., 2009 )

That was a French chemist ,notices to the management ways of anxiety (Koca Kutlu et al., 2008 ),that is a complementary medicine, that affect on senses by smelling .However the scientific researchers , have not proved this subject as well as 100% but the belief is, that aromatherapy can affect on brain and neural system ,similar to other medications. ( Kumar et al., 2003 )

Now ,the different applications have been presented of aromatherapy , some of them used , aromatherapy for decreasing anxiety (Lehrner et al., 2005 ) , and others have used it , for decreasing the menstrual cramps and reduction of dysmenorrhreal (Lehrner et al., 2005 ), and decreasing depression after child birth (McCaffrey et al., 2009 ) . This teochinic is used for psychotic and body health (Mirzaei et al. 2009 ) and quiet the pain , anxiety,depression ,insomnia ,fatigue , asthema , and even getting self-reliance and success and creation (Modanloo and Ziaea, 2005 ) . The Lavender [garden lavender ] plant is , one of the most common plants that its essence is applied aromatherapy for curing anxiety restessing and insomnia (Pagan, 2006 ).In addition , because of reasonable increasing , the hemodialysis patients , and their needs to psychotical and physical cares , by diagnosis , the anxiety on time , we can improve the patients’ life qualities pre-awareness of disease and patients eternity . If the aromatherapy be effective , it can do in the nursing cares as a safe , simple , and cheep method .For this , this research has done , to study the effects of aromatherapy , on anxiety rate . of hemodialysis patients .Based on cortisol plasma viscosity changes .

**METHOD**

In this study , that is of single blind clinical trial , we used of target sampling , and census on hemodialysis patients , in Ganjavina Hospital of Dezful , related to Dezful medicine university .In this research , on the time of starting research all units had bellow conditions including:3times on weak and minimize 6 months , they were hemodialysis , they didn't have anxietic event for last 6 months, they didn't take tranquillizing drugs .and other careworks , like using the herbal essence and do exercises .for losing anxiety for 6 weeks before intervention , didn't have confination record in hospital , or other curing activities because of psychotic disorders , didn't have allergic rinitis records or breathing problems , controled the units for having senses of smell , not being addicted to narcotic drugs , non pregnancy , non thyroid problems , not having liver problems .

For this research , 35 patients were daylsied , in the morning shift , (18 patients on odd days , and 17 on couple days for three times )The intervention group , was on odd days and , the control group was on couple days according to the lottery , that 4 people of intervention group were omitted (2Because of unsatisfaction ,1 for breathing disease , and 1 for doing to Tehran , because of renal graft )Five people were omitted from control group (3 because of unsatisfaction 1 person didn’t employee because of untolertan lavender , and 1 person because of taking nervous medications ).For whom that ,use lavender essence (it produce of Nilofaraneh plants production
from Tehran on 3 odd days, the essence was put on a cloth (1 drop each time) and stick it to their cloth collar, the patient were asked to breath normally, and continue breathing for 15 minute. After the end of each week, the blood sample were gotten and were delivered to laboratory. The gathering tools for dates including: patient’s selection from the letter of satisfaction, demographic, characteristic from, Spielberger anxiety questionnaire and blood sample, for measuring cortisol rate in blood. All the cases were done, by getting permission of Islamic Azad University Dezful and Medicine University of Dezful.

The data were analyzed, by using the SPSS software. The abundance for all the finding samples was 26 people that control group were 12 and intervention group were 14 people. In the control and intervention groups, the abundance and the percentage were similar for women and men (6 people) (50%) - (7 people) (50%) for control group. (8 people) (66.7%) - (10 people) (71.4%) for intervention group. The married people had the most abundance. In control and intervention groups the age of more than 60 years old had the most abundance, respectively: (6 people) (50%) and (5 people) (35.7%). In control group the most abundance of education related to primary educated: (8 people) (66.1%), and in intervention group the most abundance was related to uneducated people (5 people) (35.7%). The most samples in control and s intervention group were (7 people) (58.3%) and (8 people) (57.1%) respectively that they have been dialyzing for 1-5 years. As so the result in table 1 show the average numbers of cortisol serum rate of hemodialysis patients in control and intervention group before aromatherapy isn’t somach different (18.88 against 20.12). Also there isn’t so much difference between the average numbers of first and second cortisol after aromatherapy than the average numbers, before aromatherapy, (19.06 against 21.07) and (20.12 against 19.37) but on average numbers of third cortisol after intervention of these 2 groups, there isn’t clearly difference (20.60 against 16.44) that is difference is useful for intervention group to decrease third cortisol number than the control group after aromatherapy.

In diagram [1] the comparison of aromatherapy is observable on first, second and third weeks, but so that the diagram [2] shows, the average number of anxiety in hemodialysis patients by using the Spielberger questionnaire in control and intervention group, before aromatherapy, there isn’t so much difference (103.83 against 103.28).

Table 1. Central indexes and scattered rate of cortisol serum of hemodialysis patients before, at the moment and after aromatherapy in control and intervention group.

<table>
<thead>
<tr>
<th>group</th>
<th>n</th>
<th>Cortisol rate before intervention</th>
<th>First Cortisol rate after intervention</th>
<th>Second cortisol rate after intervention</th>
<th>Third cortisol rate after intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>mean</td>
<td>SD</td>
<td>mean</td>
<td>SD</td>
</tr>
<tr>
<td>Control group</td>
<td>12</td>
<td>18.88</td>
<td>5.3</td>
<td>19.06</td>
<td>3.2</td>
</tr>
<tr>
<td>Intervention group</td>
<td>14</td>
<td>20.12</td>
<td>9.9</td>
<td>21.07</td>
<td>10.09</td>
</tr>
</tbody>
</table>

Figure 1. Comparing the average numbers of cortisol rate on hemodialysis patients before, at the moment and after aromatherapy in control and intervention group.
Figure 2. Comparing the average numbers of anxiety rate in hemodialysis patient before and after aromatherapy by spealberger questionnaire in control and intervention group.

Also there isn’t important difference, among the average numbers of hemodialysis patients anxiety in the control and intervention groups, after aromatherapy (its 95.5 against 98.82). As can see on the table [2]. Because meaningful levels for all tests is meaningful on 5% it express, that test average by minimum one of the cortisol serum numbers, for hemodialysis is meaningful before, at the moment and after aromatherapy, in control and intervention group. It should suggest that Wilks-lambda, s effect test by amounts 0.664 and 0.306, and F = 3.547 and F = 15.855 show the meaningful differences among hemodialysis patients serum rate, before at the moment and after aromatherapy in witness and exam group, on meaningful level 5% even the results of MANOVA multivariable variance analysis, on MANCOVA and in the homodialysis patient cortisol serum rates, before at the moment and after aromatherapy in control and intervention group, show that, on the first and second steps, after aromatherapy between the group that cured by aromatherapy and the group that didn’t cure by it, there is slight difference, but by statistical side is not meaningful [F = 0.291, and meaningful level is P < 0.569 and F = 0.334 and P < 0.569]. But on the third level after intervention, between the group, that cured by aromatherapy, and whom that didn’t it, there is meaningful different. [F = 5.360, and meaningful level is P < 0.030].

On the other word, by regarding of the average numbers, of research groups, for aromatherapy for decreasing the plasma rate of hemodialysis patients cortisol, the cure can be effective on third step, after intervention.

Table 2. The results of multivariable covariance analysis (MANCOVA) on numbers of cortisol serum of hemodialysis patients before, at the moment, and after aromatherapy in control and intervention group.

<table>
<thead>
<tr>
<th>With before intervention</th>
<th>test</th>
<th>amount</th>
<th>F test</th>
<th>df</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pilaiyes effect</td>
<td>0.336</td>
<td>3.547</td>
<td>3</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>Wilks-lambda, s effect test</td>
<td>0.664</td>
<td>3.547</td>
<td>3</td>
<td>0.32</td>
</tr>
<tr>
<td>In 3 cortisol</td>
<td>Hiltig, s effect test</td>
<td>0.507</td>
<td>3.547</td>
<td>3</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>The root of the great test</td>
<td>0.507</td>
<td>3.547</td>
<td>3</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>Pilaiyes effect</td>
<td>0.694</td>
<td>15.855</td>
<td>3</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Wilks-lambda, s effect test</td>
<td>0.306</td>
<td>15.855</td>
<td>3</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Hiltig, s effect test</td>
<td>2.265</td>
<td>15.855</td>
<td>3</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>The root of the great test</td>
<td>2.265</td>
<td>15.855</td>
<td>3</td>
<td>0.001</td>
</tr>
</tbody>
</table>
CONCLUSION

In this research, on average numbers of hemodialysis patients anxiety, there isn't observed important differences between control and intervention group before aromatherapy, by using Spielberger anxiety questionnaire [103.83 against 103.28] also on average numbers of hemodialysis patients anxiety, in control and intervention group, there isn't any important different after aromatherapy [98.82 against 95.5]. However, modanloo, mirzaei and etal (27) and Kutlu (2008). Kanany (2011) and Hoy (2008) showed that, aromatherapy decrease the anxiety, but in the study if Itai (2000) has been showed that lavender odour is on second step, for decreasing symptoms of depression and anxiety. One of the reasons that didn't confirm this theory, according to last researchers, maybe is because should spend more time for aromatherapy. Also other reasons maybe for age education level, and early completing questionnaire.

Anxiety is one of the most common psychologic symptoms on hemodialysis patients. Different factors cause to increase hemodialysis patients anxiety rate, for example: cure period (Hoya et al., 2008), sex, that in women is 2 times more than men (Hur et al., 2005), the age, that in some cases, there is meaningful relation between increasing age and increasing anxiety, and in some others, it has been reported that there is meaningful relation between decreasing average of age, and increasing anxiety (Itai et al., 2000). By regarding to this different factors for affecting on anxiety, the researcher resulted, that cortisol rate is a better index about person's anxiety. The lavender odour decreases viscosity of cortisol level in saliva and blood of test people (Tagay et al., 2007; Sqalli-Houssaini et al., 2005). That in this research, average numbers of cortisol level in intervention group before aromatherapy on first and second and third week, are 07.12, 37.20, 19.21, 16.44. After aromatherapy, it has been showed that aromatherapy can have positive effects on decreasing cortisol rate. However, if see it than the control group, there is meaningful cortisol rate just on third week. Also its meaningful confirms with various researches. Just there are some differences in the effect speed of aromatherapy that may be related to viscosity and time period of smelling cure odour.

Mirzaei (2008) in her research about The Effect of Lavender Essence Smelling during Labor on Cortisol and Serotonin Plasma Levels and Anxiety Reduction in Nulliparous Women showed that anxiety level and cortisol viscosity decrease, after aromatherapy. This technic is used for psychotic—physical health (Mirzaei et al. 2009), and for decreasing pain, anxiety, depression, insomnia, asthma, and even self-esteem, success and creation (Modanloo and Ziaea, 2005) Kanany and etal (2011) found that the lavender essence decreases anxiety rate, in patients meaningful than before using.

According to researches, aromatherapy affects on psychologic symptoms and also affects on neurotransmitters of neural system too. It also has been demonstrate, in last researches over 4 weeks, a bout oozing neural transformers, for instance, enkephalin and endorphins (Takaki et al., 2005). It is true that there are some differences in time period and diversity and speed of aromatherapy effect on the research, but we should note, that the level of cortisol on day is naturally changeable that is called 'daily changes' (Wojtasiak, 2005).

In this study has been shown that if aromatherapy do continuously, it takes desirable effects, but we need more studies in this issue. The reasonable point that is founded on this research was that the patients have more positive sense than the lavender odour showed more decrease of cortisol level. So we can result that, lavender odour has had meaningful decrease on cortisol level than goes up, when dialysis patients have anxiety. Also Li-Wei Chien and al in 2012 found this result on their research (Zimmer, 1995).

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