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COMPARISON OF THE EFFECT OF PRAYER AND GINGER ON THE SEVERITY OF PAIN AND ANXIETY IN INPATIENTS WITH BURN: PALLIATIVE CARE

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ABSTRACT

BACKGROUND AND AIM. One of the symptoms of burning is chronic and severe pain that affects the quality of life of patients. The aim of this article was to compare of the effect of prayer and ginger on the severity of pain and anxiety in inpatients with burn.

METHODS. This study is a clinical trial study on 120 patients referred to the Burn Ward of Kashani Hospital affiliated to Shahrekord University of Medical Sciences in the southwest of Iran. Patients were randomly divided into three groups: control, prayer and ginger. The visual analogue scale (VAS) was used to determine the severity of pain and the standard measure Spielberger Anxiety Inventory was used to assess anxiety. In this study, group 1 received placebo (starch) capsules (250 mg) daily, group 2 – ginger capsules (250 mg) plus 20 ml water after each meal on a daily basis and group 3 was asked to recite the prayer for 10 minutes three times in the morning, evening and night every day. Data analysis was done by descriptive and inferential statistics (ANOVA and Tukey's test) in the SPSS.

RESULTS. After the intervention, the pain levels in the prayer and ginger groups at days 3 and 6 of hospitalization, were lower than the control group. On day 6 mean anxiety level was significantly lower in the prayer group than in the ginger group ($P < 0.05$).

CONCLUSION. According to the results of this study, it is recommended that using ginger or prayer be applied to reduce the pain and anxiety of burn patients, because they not only cause no side effects but also are low cost, leading to reduction in drug consumption and the resulting side effects.

Key words: *prayer, ginger, pain, anxiety, burn, palliative care*

INTRODUCTION

Approximately 2 million burns occur annually in the United States, leading to the hospitalization of 3-5% of the affected patients (1). Burn is more common in low-income countries, and is approximately 8 times higher in Iran than the global average (2). Tissue damage can be due to bacterial infections, tissue ischemia, and tissue crush (3). Burn is a painful condition which, if it does not lead to death, will cause numerous problems (4). Burn often leads to hospitalization, surgery and costly treatments (5, 6). Burn-related injuries are often painful and debilitating (7). Burn-induced pain is due to skin damage and therapeutic interventions (1, 2, 4), so that care for burns is often more painful than the initial trauma (8). However, daily care for wound caused by burn of the skin surface is the main cause of pain in these patients (9). If pain is

not controlled, many physiological and psychosocial risks will threaten the patient (10). Acute pain, if left unrelieved, leads to depression and reduced quality of life, prolonged stress response after burn injury, discomfort and dissatisfaction, delayed recovery and prolonged hospital stay (5, 11). Psychological effects due to burn exacerbate the pain severity (11). Pain leads to increased metabolism and exacerbates malnutrition, immunodeficiency and susceptibility to infection (12). Therefore, burn-induced pain should be given priority. Psychological problems, especially anxiety, in burn patients affect their quality of life and impair participation in rehabilitation activities (4, 10, 11). Anxiety results in decline in physical and emotional functioning and exacerbation of pain severity in these patients (13). Although opiates and sedatives reduce the discomfort and pain due to burn dressing, they do not usually suffice (14).

In spite of the desirable impacts of chemical drugs, due to their side effects, people tend to use drugs with natural origin. Ginger is one of the plants used in traditional medicine to reduce pain. Ginger is a traditional and inexpensive herb that causes no side effects in the central nervous system (15). Ginger is used for certain conditions such as headache, nausea, rheumatism, and common cold. It has a warm nature and can treat cold extremities, improve faint pulse, and strengthen the body's organs (15, 16). Stem root of the plant produces ginger oil that contains numerous sesquiterpene hydrocarbons, especially zingiberene. The main spicy ingredient of ginger is the active ingredient gingerol, which is converted to shogaol and gingerol (17). It seems that there are large amounts of gingerol in the dried and extracted compounds (17, 18). It is used to treat joint swelling and pain, dizziness, perspiration, nausea and vomiting caused by motion sickness or seasickness, sore throat, muscle pains, menstrual cramps, arthritis, fever, and pain due to common cold and influenza. Ginger acts as an inhibitor of cyclooxygenase (17, 19) and lipoxygenase, and leads to inhibition of prostaglandins as an anti-inflammatory agent (20). Ginger has been proven to be a potent sedative agent for acute and chronic inflammation and to inhibit the production of nitric oxide (NO) (21). Schurholz et al. recommended that compressed ginger along with thermotherapy is effective for the treatment of arthritis (22). The short-term and favorite impacts of oral ginger have been reported for relief of knee pain (23). Ginger can produce anti-inflammatory effects by inhibiting the arachidonic acid metabolism in both cyclooxygenase and lipoxygenase. Besides that, ginger extract inhibits the activation of tumor necrosis factor alpha and cyclooxygenase-2 in human synoviocytes (19, 21).

Another method to alleviate pain and anxiety is prayer. Obviously, in the remembrance of Allah, hearts become satisfied (24). Previous studies have shown that prayer is a strong factor for relieving and controlling stress of patients (25). Prayer therapy plays a substantial role in increasing pain tolerance threshold (26). These studies have also indicated that religious beliefs desirably affect relief of pain and anxiety. Prayer therapy could decrease stress in allopathic procedures (24). In addition, prayer is originated from people's cultural beliefs and religious viewpoints; another advantage of prayer therapy is that it has no side effects (27). As a result, prayer could be used as a complementary procedure to relieve anxiety and pain (24).

The aim of this study is to compare the effect of prayer and ginger on the severity of pain and anxiety in patients with burns hospitalized in Kashani Hospital, Shahrekord.

METHODS

This study is a clinical trial conducted on 120 patients referred to the Burn Ward of Kashani Hospital affiliated to Shahrekord University of Medical Sciences, Shahrekord, southwest Iran. First, the purpose of the study was explained to patients, and after they signed informed, written consent to participate in the study, they were enrolled in the study. The sample size was calculated at 120 (divided into three groups of 40 each) according to the following formula:

$$N = \frac{4\delta^2(Z_\alpha + Z_\beta)^2}{(\mu_1 - \mu_0)^2}$$

$$\mu_1=28.51, \mu_0=23.55, SD=6.655, \alpha=0.05, 1-\beta=0.9$$

Then, patients were randomly divided into three groups: control, prayer and ginger. All patients had similar religious and cultural backgrounds. To assign patients to the three groups, a number of cards were put into a box, and then the patients were asked to take out a card to be assigned to one of the groups based on the card's number. Inclusion criteria were: experiencing a burn accident (causing a third-degree burn affecting an area of 10% due to contact with heat source or hot liquids), referring to the hospital, and having normal total hemoglobin and protein levels. Exclusion criteria were: having allergy to ginger, having experienced the burn accident for over 6 hours, suffering from underlying diseases, and lack of volunteering to participate in the study.

A checklist was used to collect the demographic information of the patients, the visual analogue scale (VAS) was used to determine the severity of pain, and the standard measure Spielberger Anxiety Inventory was used to investigate anxiety in the patients. Before dressing burn, patients were asked to score their anxiety level using the instrument to measure burn pain-induced anxiety from zero (without anxiety) to 90 (the highest level of anxiety). The higher the score was, the higher the level of anxiety was.

In this study, group 1 received placebo (starch) capsules (250 mg) daily, and group 2 ginger capsules (250 mg) plus 20 ml water after each meal on a daily basis. The capsules in both groups were identical in shape, package and color, were coated, were tasteless, and were labelled by a pharmacologist. Group 3 was asked to recite the prayer for 10 minutes three times: in the morning, evening and night every day. The prayer was reciting *Allah-o-akbar* 34 times, *al-hamdu lillah* 33 times, and *subhan Allah* 33 times (24).

To observe research ethics, it should be noted that patients in all three groups were injected with routine

antibiotics and morphine at 10 mg/g. Patients were hospitalized for 10 days based on a specialist's order.

The levels of anxiety and pain were measured in triplicate. Data analysis was done by descriptive and inferential statistics (ANOVA and Tukey's test) in the SPSS.

RESULTS

There was no significant difference in gender, age, and education level between the groups before the intervention (Table I).

Comparison of the mean pain score in the studied groups at different intervals of hospitalization showed that on the day of admission no significant difference

in pain score was noticed between the three groups ($P > 0.05$), but on days 3 and 6, the difference was statistically significant ($P < 0.05$) (Table II, III).

In addition, on day 6, the mean pain score was lower in the prayer group than in the other two groups ($P < 0.05$). There was also no significant difference in anxiety level between the day of admission and the day 3 of hospitalization among the three groups ($P > 0.05$), but on day 6 of hospitalization, the difference was statistically significant ($P < 0.05$), so that in the ginger and prayer groups the level of anxiety decreased, but there was no significant change in the control group (Table IV).

Table V showed that the mean anxiety levels in different groups were not significantly different on

Table I. Demographic characteristic of groups

| Variable | | Groups | | | Total | p |
|-----------------|--------------------------------|---------|--------|--------|-------|------|
| | | Control | Ginger | Prayer | | |
| Gender | Male | 24 | 29 | 26 | 79 | 0.49 |
| | Female | 16 | 11 | 14 | 41 | |
| Education level | University education | 1 | 4 | 7 | 12 | 0.09 |
| | diploma | 7 | 18 | 18 | 43 | |
| | Secondary education completion | 3 | 5 | 9 | 17 | |
| | Ability to read and write | 8 | 8 | 6 | 22 | |
| | Illiterate | 21 | 5 | 0 | 26 | |
| Type of living | Dispersed | 5 | 2 | 6 | 13 | 0.32 |
| | Focal | 35 | 38 | 34 | 107 | |
| Age (yr) | 11-20 | 23 | 13 | 18 | 54 | 0.22 |
| | 21-30 | 12 | 14 | 11 | 37 | |
| | 31-40 | 4 | 10 | 6 | 20 | |
| | 41-50 | 1 | 3 | 5 | 9 | |
| | Average | 21.19 | 27.27 | 27.25 | 25.92 | |
| Marital status | Miscellaneous | 7 | 1 | 2 | 10 | 0.09 |
| | Widow/widower | 2 | 3 | 6 | 11 | |
| | Single | 17 | 14 | 13 | 44 | |
| | Married | 14 | 22 | 19 | 55 | |

Table II. Analysis of variance for comparison of pain severity in groups

| Studied interval | | Total sum of squares | df | Mean square | f | p |
|--------------------------|-------------|----------------------|-----|-------------|--------|------|
| At admission | Inter-group | 12.350 | 2 | 6.175 | .995 | .373 |
| | Intra-group | 725.975 | 117 | 6.205 | | |
| | Total | 738.325 | 119 | | | |
| Day 3 of hospitalization | Inter-group | 45.600 | 2 | 22.800 | 5.470 | .005 |
| | Intra-group | 487.700 | 117 | 4.168 | | |
| | Total | 533.300 | 119 | | | |
| Day 6 of hospitalization | Inter-group | 175.217 | 2 | 87.608 | 22.362 | .000 |
| | Intra-group | 458.375 | 117 | 3.918 | | |
| | Total | 633.592 | 119 | | | |

Table III. Tukey’s test for comparison of pain severity in groups

| Assessment time | Group(I) | (j) Group | Difference in mean value | Standard deviation | P |
|--------------------------|----------|-----------|--------------------------|--------------------|------|
| At admission | placebo | ginger | .50000 | .55700 | .643 |
| | | prayer | -.27500 | .55700 | .874 |
| | ginger | placebo | -.50000 | .55700 | .643 |
| | | prayer | -.77500 | .55700 | .349 |
| | prayer | placebo | .27500 | .55700 | .874 |
| | | ginger | .77500 | .55700 | .349 |
| Day 3 of hospitalization | placebo | ginger | .90000 | .45653 | .124 |
| | | prayer | 1.50000* | .45653 | .004 |
| | ginger | placebo | -.90000 | .45653 | .124 |
| | | prayer | .60000 | .45653 | .390 |
| | prayer | placebo | -1.50000* | .45653 | .004 |
| | | ginger | -.60000 | .45653 | .390 |
| Day 6 of hospitalization | placebo | ginger | .07500 | .44259 | .984 |
| | | prayer | 2.60000* | .44259 | .000 |
| | ginger | placebo | -.07500 | .44259 | .984 |
| | | prayer | 2.52500* | .44259 | .000 |
| | prayer | placebo | -2.60000* | .44259 | .000 |
| | | ginger | -2.52500* | .44259 | .000 |

Table IV. Analysis of variance for comparison of anxiety level in groups

| Assessments Time | | Total sum of squares | df | Mean square | f | P |
|--------------------------|-------------|----------------------|-----|-------------|-------|------|
| At admission | Inter-group | 89.877 | 2 | 44.938 | .747 | .476 |
| | Intra-group | 7034.568 | 117 | 60.125 | | |
| | Total | 7124.444 | 119 | | | |
| Day 3 of hospitalization | Inter-group | 549.156 | 2 | 274.578 | 2.201 | .115 |
| | Intra-group | 14596.512 | 117 | 124.757 | | |
| | Total | 15145.669 | 119 | | | |
| Day 6 of hospitalization | Inter-group | 815.966 | 2 | 407.983 | 3.146 | .047 |
| | Intra-group | 15172.754 | 117 | 129.682 | | |
| | Total | 15988.721 | 119 | | | |

the day of admission and day 3 of hospitalization ($P > 0.05$), but on day 6, mean anxiety level was significantly lower in the prayer group than in the ginger group ($P < 0.05$) (Table V).

DISCUSSION

The results of our study showed that ginger and prayer affected the levels of pain in burn patients. The study of the Fadaki et al. showed that ginger prevented inflammatory diseases, such as osteoarthritis, and helped to control rheumatoid arthritis and relieve pain by boosting the immune system (28). Ginger is used as an anti-inflammatory, analgesic, anti-migraine, antimicrobial and anti-inflammatory agent, and can

reduce nausea and vomiting. Ginger is used as an alternative drug to reduce heavy menstrual flow and to treat late period. Ginger at large doses leads to abortion as well (15, 19). Ginger, as with many other herbs, produces blood-diluting effects that can facilitate bleeding in people who use anticoagulant drugs (29). Single dose of ginger reduced muscle pain caused by muscle training, inflammation, or dysfunction 45 minutes after consumption; ginger also slows down daily development of muscle pain. Ginger and its compounds inhibit COX-1 and COX-2. Ginger consumption can lead to a dramatic decrease in the development of muscle pain. Oral administration of ginger for a few weeks can lead to hypoalgesia in arthritis osteoarthritis patients (30). In one study,

Table V. Tukey's test for comparison of anxiety levels in different groups of patients at different time intervals

| Studied interval | Group(I) | (j) Group | Difference in mean value | Standard deviation | <i>p</i> |
|--------------------------|----------|-----------|--------------------------|--------------------|----------|
| At admission | placebo | ginger | -1.22222 | 1.73385 | .761 |
| | | prayer | -2.11111 | 1.73385 | .445 |
| | ginger | placebo | 1.22222 | 1.73385 | .761 |
| | | prayer | -.88889 | 1.73385 | .865 |
| | prayer | placebo | 2.11111 | 1.73385 | .445 |
| | | ginger | .88889 | 1.73385 | .865 |
| Day 3 of hospitalization | placebo | ginger | .88889 | 2.49756 | .933 |
| | | prayer | 4.91667 | 2.49756 | .125 |
| | ginger | placebo | -.88889 | 2.49756 | .933 |
| | | prayer | 4.02778 | 2.49756 | .244 |
| | prayer | placebo | -4.91667 | 2.49756 | .125 |
| | | ginger | -4.02778 | 2.49756 | .244 |
| Day 6 of hospitalization | placebo | ginger | -1.05556 | 2.54639 | .910 |
| | | prayer | 4.92778 | 2.54639 | .133 |
| | ginger | placebo | 1.05556 | 2.54639 | .910 |
| | | prayer | 5.98333 | 2.85456 | .048 |
| | prayer | placebo | -4.92778 | 2.54639 | .133 |
| | | ginger | -5.98333 | 2.85456 | .048 |

consumption of 100 mg/kg of ginger extract reduced pain. That study also showed that ginger reduced knee osteoarthritis (30). The results of our study showed that the average anxiety levels on days 3 and 6 in three groups were different, reflecting that the use of ginger and prayer resulted in anxiety reduction. Although there was no significant difference in the level of anxiety on the days 1 and 3 of hospitalization between the three groups ($P > 0.05$), the difference was statistically significant on day 6 ($P < 0.05$). These results are consistent with the findings of Fadaki et al. who reported that ginger consumption led to anxiety relief (28), and the studies of Dehkordi et al. in which prayer led to a reduction in stress, irritability, and loneliness, mood improvement, and emotional adjustment (24), as well as the study of Majidi et al. where prayer reduced anxiety in patients before surgery and invasive diagnostic procedures (31). The results also showed a significant relationship between pain and anxiety in prayer group. The results of studies have shown that religious beliefs play a very important role in reducing the symptoms of cancer so that 20-60% of the variance in mental health of individuals are explained by religious beliefs (24).

The *hadiths* also emphasize the importance and influence of religious beliefs on the healing of heart disease and alleviation of pain (32). Prayers and chants are one of the acts that can be performed individually and collectively. One of the types of prayers is the repetition of the God-reminding words and one's needs

for God. God-reminding words refer to the refreshing of one's tongue and heart with the divine goodness and keeping the whole soul happy under the constant flow of God's remembrance. God's remembrance pacifies the heart, heals it, polishes the breast, relieves pains, makes the soul healthy, and illuminates wisdom (24). Patients with stronger beliefs are less likely to develop pain and tiredness. The results of other studies showed that faith and belief in God would reduce pain and lead to easier acceptance of disease in cancer patients (33). When human beings feel hurt and alone, and do not hope others to help them reduce their impossible-to-treat physical or psychological conditions, the only way for them to survive anxiety, depression and pain is to seek out the assistance of faith and religious beliefs. When the pain, suffering, defeat, and anything else are conceptualized in the form of prayer, one finds himself/herself flourishing and his spiritual sufferings are relieved (34). The findings of the present study are consistent with the studies reporting that prayer leads to pain reduction in the active phase of delivery (31, 35).

Study Limitations

In this study, there were differences among participants in terms of pain tolerance threshold and mental conditions; however, to overcome this issue, random sampling was used to select participants. It is recommended that this study be performed in a larger population with different cultures.

CONCLUSION

According to the results of this study, it is recommended that ginger or prayer be used to reduce pain and anxiety in burn patients, because they not only cause no side effects but also are low cost, leading to reduction in drug consumption and the resulting side effects.

Conflict of interest

There is no conflict interest to disclose.

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