RESEARCH
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EFFECT OF KNEE TO CHEST POSITION ON MENSTRUAL PAIN IN FEMALES WITH PRIMARY DYSMENORRHEA

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Abstract
Background: Primary dysmenorrhea is a common gynecological disorder among females. Dysmenorrhea is a painful symptom that accompanies the menstrual cycles and there is no presence of any pelvic pathology in primary dysmenorrhea. Although exercise is generally thought to alleviate the symptoms of menstrual pain the scientific literature displays mixed evidence
Aim: To evaluate the effect of knee to chest position on menstrual pain in females with primary dysmenorrhea.
Method:68 participants were taken from tertiary care hospital. They were randomly allocated to control and experimental group after taking informed consent from the patient and clearance from institutional ethical committee. Primary dysmenorrhea was diagnosed with the help of WALLID score. Visual Analogue Scale (VAS) and Euro Quality of Life 5 dimensions 5 level scale (EQ5D5L) were used as outcome measures. Experimental group received moist hot pack for 10mins and knee to chest position for 10 repetitions with 20 seconds hold. Control group received only moist hot pack for 10 mins. The intervention was carried out for 2 days beginning from the first day of menstrual cycle. Outcome measures were documented using VAS on both the days pre and post intervention and EQ5D5L on 1st day pre intervention and 2nd day post intervention respectively.
Results: The result show significant reduction in VAS and EQ5D5L scores in the experimental group than control group.
Conclusion: Knee to chest position along with hot moist pack is effective in reducing pain and relieving the discomforts of primary dysmenorrhea.
Keyword: EQ5D5L, Knee to chest position, Moist hot pack, Primary dysmenorrhea, Visual analogue scale.

INTRODUCTION

Primary dysmenorrhea is defined as painful menstruation in the absence of pelvic pathology and is one of the most common complaints in young women. Secondary dysmenorrhea is defined as menstrual pain resulting from underlying pelvic pathology.[1] Dysmenorrhea is common gynecological complain that can affect 50% of women with 10% of these women suffering severely enough to render them.[2] The incidence of primary dysmenorrhea is about 45-50% in India. Symptoms of primary dysmenorrhea includes cramping pain in the lower abdominal area which may or may not radiate to the lower back and which is accompanied by headache, nausea, tiredness and feeling of discomfort. Pain is usually described as cramping in nature and pain is felt mainly in hypogastrium and radiates to the inner and front aspects of thighs and to the lower back.[3] Dysmenorrhea can be classified as mild, moderate, or severe depending on the degree of pain experienced. The pain experienced by adolescents with primary dysmenorrhea can be very disabling and consequently affects person's mood. In primary dysmenorrhea pain begins few hours before or after the onset of menstruation at last for about 24-48 hours.[4]

Women's who exercise have a reduced incidence of dysmenorrhea which could be due to exercise related hormonal effects on the lining of the uterus or increased levels of circulatory endorphins[3]. Women with secondary dysmenorrhea often have chronic pelvic pain associated with structural abnormality whereas in primary dysmenorrhea there is no structural deformity.[5]

Although etiology of dysmenorrhea is not fully understood but the cause of pain at, or around, the time of menses is believed to be due to the production of prostaglandins in the endometrium in an ovulatory cycle.[6] There are some reports that indicate the levels of prostaglandin F2 ALPHA measured in menstrual fluid and found to be twice higher in the dysmenorrhea as against the non-dysmenorrhea women.[7]

There are about 90% of adolescent females and more than 50% of menstruating females globally suffer from primary dysmenorrhea. Dysmenorrhea is the reason for repeated short-term school and work absenteeism in females of reproductive

age. About 10-15% of females experience monthly severe menstrual pain with associated negative impacts on normal daily functions at school, work or home.

Superficial heat that ranges from 40-45 degree C treats the application site to a depth of about 1 cm. traditionally; superficial heat has been used in different forms (e.g., hot water bags, towels or bottles) to ease menstrual pain. Studies have found that heat is a common (36.5-50%) method for coping with dysmenorrhea. The application of local heat can reduce muscle tension and relax abdominal muscles to reduce pain caused by muscle spasms.[8]

On the other hand, several physical exercises and positions have been suggested to eliminate menstrual pain, such as knee-chest position, targeted during the active menstrual period.

Various exercises and positions have been proposed which are targeted in between the menstrual cycle but not evaluated during active menstrual period. Although literature suggests that perimenstrual positions and hot compresses are indicated for primary dysmenorrhea but no specific therapy has been studied or recommended for clinical implication. Hence this study aimed to evaluate the effect of knee to chest position on menstrual pain and quality of life in primary dysmenorrhea.

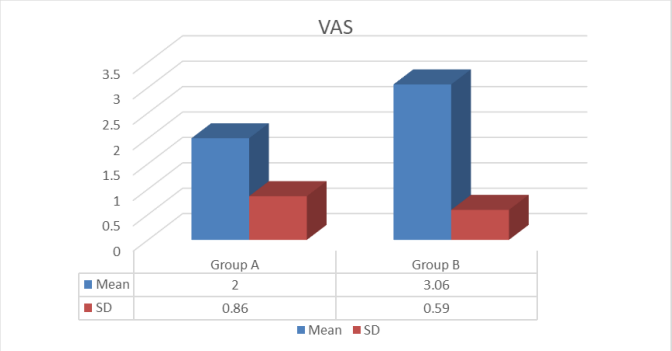
PROCEDURE

Approval of the selected topic was taken from ethical committee. Consent was taken from the participant and the participants were explained about the study and the procedure. Participants were made sure that they can leave the study without giving any significant reason. Participants were randomly selected from tertiary care hospital. Female participants of age group 16-25, having mild to moderate dysmenorrhea on "WALLID" score and menstrual pain for at least Day 1 of menstrual cycle were selected according to inclusion criteria. Participants having severe primary dysmenorrhea, irregular or infrequent menstrual cycle, any pelvic pathology and on pain killers were excluded.

Total of 68 participants were included in the study and they were divided into 2 groups with 34 participants in each group. Before starting the procedure, participants were diagnosed for primary dysmenorrhea using "WALLID" score. The participants were randomly divided into Group A (experimental group) receiving moist hot pack and knee to chest position. And Group B (control group) receiving moist hot pack. Intervention was given for 2 days, beginning from the first day of menses. The participants were received moist hot pack for 10 minutes which were placed on their lower abdomen and after that they were made to perform alternate knee to chest position. The participants were in supine position on the treatment table and alternate knee to chest position were made to perform for duration of 20 seconds hold and frequency of 10 repetitions each twice a day. Outcome measures like VAS (Visual Analogue Scale) and eq5d5l (Euro quality of life 5 dimensions 5 levels questionnaire) were assessed at baseline and at second day.

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

Table 1 & Graph 1 Shows post MEAN and SD values at day 2 of group A and group B of VAS



Graph 1 shows the post Mean and SD values of group A i.e., 2 and 0.86 respectively of VAS scale. It also shows the post Mean and SD values of group B i.e., 3.06 and 0.59 respectively of VAS scale. t=5.92 and p < .0001 suggesting group A showed more improvement in VAS score then group B.

Table 2 & Graph 2 Shows post MEAN and SD values at day 2 of group A and group B of EQ5D5L

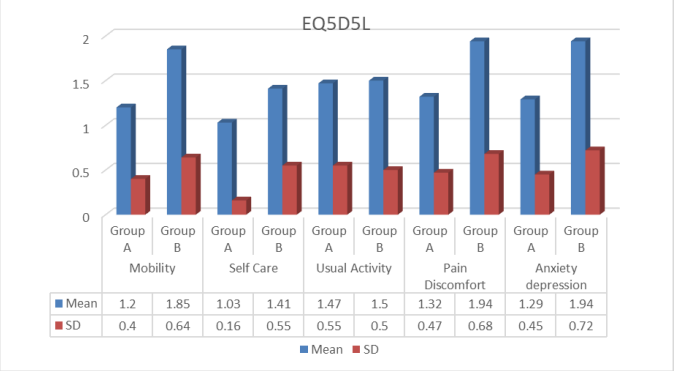


Table 2 shows EQ5D5L scale which has 5 domains and they are mobility, self-care, usual activity, pain discomfort and anxiety depression. DOMAIN 1-Mobility which shows post MEAN and SD values of group A i.e., 1.2 and 0.4 respectively and post MEAN and SD values of group B i.e., 1.85 and 0.64 respectively. DOMAIN 2- Self-care which shows post MEAN and SD values of group A i.e., 1.03 and 0.16 respectively and post MEAN and SD values of group B i.e., 1.41 and 0.55 respectively. DOMAIN 3- Usual activity which shows post MEAN and SD values of group A i.e., 1.47 and 0.55 respectively and post MEAN and SD values of group B i.e., 1.5 and 0.5 respectively. Domain 4- Pain and discomfort which shows post MEAN and SD values of group A i.e., 1.32 and 0.47 respectively and also shows post MEAN and SD values of group B i.e., 1.94 and 0.68 respectively. Domain 5- Anxiety and depression which shows post MEAN and SD values of group A i.e., 1.29 and 0.45 respectively and also shows post MEAN and SD values of group B i.e., 1.94 and 0.72 respectively. The p < .0001 for all the domains showing significant improvement in group A then group B.

Table 3 & Graph 3 Shows post MEAN and SD values at day 2 of group A & group B of health status

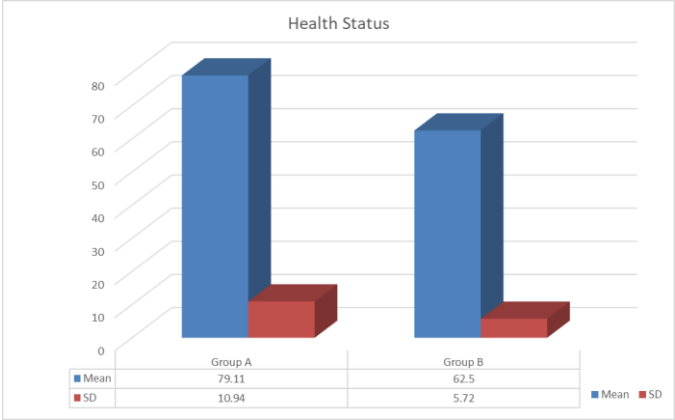


Table 3 shows the post MEAN and SD values of group A i.e., 79.11 and 10.94 respectively of Health Status. It also shows the post MEAN and SD values of group B i.e., 62.5 and 5.72 respectively of Health Status. t value was 7.84 and $p < .0001$. Group A showed more improvement than group B.

DISCUSSION

Dysmenorrhea is a cyclical and debilitating process that profoundly affects women worldwide with immense socio-economic consequences. This also comes with some risk factors and many studies have shown that a range of risk factors might be associated with primary dysmenorrhea, including biological, psychological, social and lifestyle factors. Biological factors might include earlier age at menarche, heavier menstrual flow, family history of dysmenorrhea; Psychological factors include stress, anxiety and depression; Social factors include a lower level of social support and lifestyle factors include cigarette smoking, drinking alcohol during period (alcohol tends to prolong menstrual pain) and irregular diet.

The pathogenesis of primary dysmenorrhea is elevated levels of uterine prostaglandins. Some etiological studies report that production of prostaglandins is controlled by the sex hormone progesterone, with prostaglandins and progesterone displaying an inverse relationship (i.e. increased progesterone levels reduce prostaglandin levels). Pro-inflammatory cytokines [IL-6] and TNF-ALPHA are also implicated in the pathogens of primary dysmenorrhea.

The current study assessed pain scores among menstruating females with primary dysmenorrhea before and after giving moist hot pack and knee to chest position. In this study, participants were randomly allocated in 2 groups i.e., experimental group and control group.

The present study results show that knee to chest position along with moist hot pack have significantly reduced pain in subjects with primary dysmenorrhea as measured by VAS and EQ5D5L. Experimental group was given moist hot pack and knee to chest position. Moist hot pack was given for 10 minutes and knee to chest position for first 2 days of menstrual cycle and the moist hot pack was used as the self-help therapy applied over suprapubic region. Arati Mahishale et al.[9] described in her study that topical applied heat has proved subjective relief of pain in primary dysmenorrhea. After receiving moist hot pack for 10 minutes alternate knee to chest position were made to perform for duration of 20 seconds hold and frequency of 10 repetitions each twice a day. Howaida Amin El Sabba et al.[10] in their study described that knee to chest position acting as a non-specific analgesic by improving pelvic blood circulation and stimulating the release of beta endorphins. Knee to chest position leads to the avoidance and regression of dysmenorrhea by decreasing stress and improving mood. A study by Bushnell MC et al.[11] concluded that the platform of Non-pharmacological Treatment of Pain represents a broad forum on issues pertinent to the modulation of the pain phenotype in humans. Rima gupta et al.[12] described that the non-pharmacological interventions of active exercises were effective in the management of dysmenorrhea and these methods were preferred by patients to over the counter painkiller medications.

Control group received only moist hot pack for 10 mins. For menstruating women with dysmenorrhea, the application of local heat can reduce muscle tension and relaxes abdominal muscles to reduce pain caused by the muscle spasms.

As the experimental group received both moist hot pack and knee to chest position and has shown significant reduction in pain and thus it signifies the combine effect of both.

CONCLUSION

Knee to chest position along with hot moist pack is effective in reducing pain and relieving the discomforts of primary dysmenorrhea

LIMITATIONS AND FUTURE SCOPE

Data was collected only at one menstrual period and no follow up was done. Only small geographical population was taken. In future studies more exercises can be included and analyzed.

Conflict of Interest: None.

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