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Effects of Endorphin Massage on β-endorphin Level and Edinburgh Postnatal Depression Scale (EPDS) Score in Women with Postpartum Blues

Postpartum Depresyonlu Kadınlarda Endorfin Masajının Edinburg Doğum Sonrası Depresyon Ölçeği (EPDS) ve β-endorfin Seviyesi Üzerine Etkileri

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ABSTRACT

Purpose: This study aimed to investigate the effects of endorphin massage on β-endorphin level and EPDS score in women with postpartum blues.

Material and Methods: Twenty postpartum women volunteered for the study. All of them gave written consent regarding their participation. The inclusion criteria were mother with post partum blues at third day post partum and EPDS score > 9, while the exclusion criteria were mother with history of depression post partum. The measurement of marker (β-endorphin) and EPDS scoring was done prior and after massage treatment.Endorphin massage was done by her husband or researcher according instruction that provided, 4 times a week, once in morning for 20 minutes including right arm, left arm, neck, and lower back (5 minutes each).

Results: Endorphin massage treatment significantly increase the β-endorphin level compared to before treatment ($P < 0.05$). The level of EPDS significantly decrease after treatment than that before treatment ($P < 0.05$). There is significantly negative correlation between β-endorphin level and EPDS score ($r = -0,517$; $P < 0.05$).

Conclusion: Endorphin massage is good alternative treatment to increase β-endorphin level and decresae EPDS score among mother with postpartum blues.

Key Words: Endorphin massage; minor depression; scoring; hormonal.

ÖZET

Amaç: Bu çalışmada postpartum dönemde depresyonlu olan kadınlarda endorfin masajının β-endorfin seviyesi ve EPDS üzerine etkilerinin incelenmesi amaçlanmıştır.

Materyal ve Metod: Çalışma için potpartum dönemde olan 20 anne gönüllü olarak seçilmiş olup hepsinden katılımları ile ilgili yazılı izin alınmıştır. Çalışmaya dahil edilen postpartum depresyonlu kadınlar, postpartum dönemin 3. gününde olup EPDS değerleri de 9' dan büyüktür. Ayrıca postpartum depresyon geçmişleri de yoktur. Annelere yapılan masaj tedavisi öncesinde ve sonrasında; β-endorfin değerleri ve EPDS ölçümleri alınmıştır. Endorfin masajı araştırmacılar veya gerekli bilgi verildikten sonra hastaların eşleri tarafından günde 1 defa 20 dakika haftada 4 kez ; her birine 5 dakika olmak üzere sağ kol, sol kol, boyun ve sırt bölgelerine yapılmıştır.

Bulgular: Endorfin masajı tedavisi β-endorfin seviyesini tedavi öncesine kıyasla önemli derecede arttırmıştır ($p< 0,05$). EPDS değeri ise tedavi öncesi döneme kıyasla ciddi derecede azalmıştır ($p< 0,05$). β-endorfin seviyesi ve EPDS değeri arasında önemli derecede negatif korelasyon vardır ($r = -0,517$; $P < 0.05$).

Tartışma: Endorfin masajı postpartum depresyonlu kadınlarda β-endorfin seviyesini arttıran, EPDS değerini azaltan iyi bir alternatif tedavi yöntemidir.

Anahtar Kelimeler: Endorfin masajı; minör depresyon; skorlama; hormonal.

INTRODUCTION

Puerperium is the period of greatest vulnerability for the woman[1-3]. Maternity blues (MB), also known post-partum blues is characterized by symptoms of irritability, sadness, and a tendency to cry within the tent first days after giving birth[4-7]. According to the various diagnostic criteria, a prevalence of 15% to 80% of puerperal women are admitted[1,8,9]. MB is associate it with greater risk for depression in early or late puerperium[10,11].

The safety of antidepressants during lactation exis but the long-term effects of antidepressant exposure through breast-feeding on the infant's developing brain are unknown. In addition,the prescription to breast-feeding women requires a case-specific risk-benefit decision[12,13]. Moreover, given that most new mothers prefer to avoid medication, particularly if breast-feeding, it is important that alternative interventions beevaluated for prevention and treatment of post-partum depression[14,15].

Massage in general is supposed to cause relaxation of the muscles. Massage able to increased release of oxytocin and endorphins and decreased stress hormone level in the blood after massage treatment.Massage is considered to change physiological and psychological benefits due to lowered blood pressure, improved lymphatic circulation, and incresae threshold for pain. Furthermore, massage is supposed to improve subjects' awareness of the state of the muscles[16,17].

β-Endorphin is a component of the hypothalamic-pituitary-adrenal axis, it is released into the peripheral blood during stress, injury, mental strain, and exercise as positive human immune regulator[18].The EPDS is a 10-item questionnaire designed to screen for post-partum depression, it has strong validity and reliability in large community surveys and has been translated and validated in French[19,20]. A highly significant positive correlation has been noted between EPDS scores at 5 days and 6 weeks post-partum, a threshold of 10 being predictive of post-partum depression[21].This study aimed to investigate the effects of endorphin massage on β-endorphin level and EPDS score in women with postpartum blues.

MATERIAL AND METHODS

Subjects

Twenty postpartum women volunteered for the study. All of them gave written consent regarding their participation. A physician reviewed their medical histories. The sample was massage-treatment group. The inclusion criteria were mother with post partum blues at third day post partum and EPDS score > 9, while the exclusion criteria were mother with history of depression post partum. The measurement of marker (β-endorphin) and EPDS scoring was done prior and after massage treatment.

EPDS Scoring

On the third day, the Edinburgh Postnatal Depression Scale was also completed. The Edinburgh Postnatal Depression Scale is a 10-item sel report questionnaire. Each question has four syem questions that are scores 0-3 (resulting range 0-30) [22].

Endorphin Massage

Endorphinmassage was done by her husband or researcher according instruction that provided. Massage was done 4 times a week, once in morning for 20 minutes including right arm, left arm, neck, and lower back (5 minutes each).

Blood Samples

Blood was drawn from an antecubital vein into 10-ml serum Vacutainer tubes, 5-ml heparin Vacutainer tubes and 3-ml ethylenedi-

aminetetraacetic acid (EDTA) Vacutainer tubes. The heparin and EDTA tubes were then stored on ice and centrifuged within 30 min at 3000 rpm (5000 g) for 10 min at 4 °C. After approximately 45 min, serum tubes were centrifuged at 3000 rpm (5000 g) for 10 min at room temperature. Serum and plasma were separated from blood cells and stored at -20°C until analyzed.

β-endorphin Analysis

β-endorphin in serum was measured before and after massage-treatment by immunoenzymatically using an ELISA method (Human β - Endorphin ELISA Kit, REF. DZE30867, LOT. 201306, produced byAsmausco Pharma, Co.,Ltd,) with assay range 75 ng/L – 2400 ng/L.

Ethics

This research has been approved by research ethics committee Faculty of Medicine University of Brawijaya, Malang, Indonesia

Statistical analysis

Data are presented as mean ± SD and differences between groups were analyzed using t-student test with SPSS 15.0 statistical package. Pearson correlation was also conducted to analyze the association between β-endorphin level and EPDS score.

RESULTS

Table 1 shows the levels of β-endorphin and EPDSbefore and after endorphin massage treatment. Endorphin massage treatment significantly increase the β-endorphin level compared to before treatment (P< 0.05). The level of EPDS significantly decrease after treatment than that before treatment (P< 0.05). There is significantly negative correlation between β-endorphin level and EPDS score (r = -0,517; P< 0.05).

Table 1.β-endorphin and EPDS before and after endorphin massage treatment

	Before treatment (*N* = 20)	After treatment (*N* = 23)
β-endorphin (ng/l)	1241.47 ± 1701.91	1929.96 ± 2617.93[a]
EPDS (unit)	14.60 ± 3.79	9.15 ± 4.16[a]

Values are expressed as mean ± SD. [a]P< 0.05; in comparison with before treatment; EPDS: Edinburgh Postnatal Depression Scale; ng/l: nanogram per liter.

DISCUSSION

Massage is a commonly used treatment, but little scientific evidence exists to support its use, especially for mother with postpartum blues. In this study we found that endorphin massage change physiological and psychological benefits in mother with postpartum blues.The level of EPDS significantly decrease after endorphin massage treatment (9.15 ± 4.16) than that before treatment (14.60 ± 3.79) (P< 0.05). This finding indicate that endorphin massage have benefits effects due to changes major depression into minor depression in postpartum mother. In Nigerian, cutfoff of 9 and 13 have been recommended for symptoms of minor depression or major depression, respectively[23].

Massage therapy affects surface skin, soft tissues, muscles, tendons, ligaments and fascia by manual systematic techniques. Using an endorphin-release mechanism, controlling nerve gates and stimulating sympathetic nerves, massage therapy could lead to muscular relaxation. In this study we found that endorphin massage treatment significantly increase the β-endorphin level compared to before treatment (P < 0.05).Corticotropin releasing hormone (CRH), as the main stress mediator, is responsible for the central plasma β-endorphin level increase. CRH may directly stimulate plasma β-endorphin level production[24]. Previous studies showed thatelevated levels of ß-endorphin in patients with

depressive disorders after 2 weeks of treatment were the signs of readaptive remodeling and activation of the stress-limiting systems of the body[25,26]. This psychologic effects indicated the systemic sanogenetic changes. Increased plasma ß-endorphin levels were found by the end of the acute period of traumatic disorders. Besides, this finding also supported for increased peptide level in patients with depression after the action of electric shock, as the "hypothalamic response"[27].

In conclusion, our data suggested that endorphin massage is good alternative treatment to increase β-endorphin level and decresae EPDS score among mother with postpartum blues.

Declaration of İnterest

The author(s) declare(s) that there is no conflict of interests regarding the publication of this article.

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