

# Image of TNF- as Indicator of Inflammation in Women Taking Regiosacral Counter- Pressure Therapy for Reducing Menstrual Pain Level

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# Image of TNF- as Indicator of Inflammation in Women Taking Regiosacral Counter-Pressure Therapy for Reducing Menstrual Pain Level

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**Abstract. Background:** Severe pain can be experienced by women during menstruation which results in the disruption of daily activities and is not productive, therefore therapy is needed to reduce the pain. Regional counter-pressure therapy has been shown to reduce pain levels, but the pressure applied to the regiosacral area can cause inflammation. Therefore, there is a need for research that can detect the inflammatory process. TNF- $\alpha$  levels are an indicator of the inflammatory process.

**Aim:** This study aims to describe the level of TNF- as the impact of pressure applied during Regiosacral Counter-Pressure therapy in reducing the level of labor pain.

**Methods:** Research design using Coasy Experiment, the population and sample in this study were 51 women who experienced pain during menstruation who were selected with a purposive sample. The criteria are young women who experience pain during menstruation, do not take pain-reducing drugs, are not in a condition of pain/fever, and are not experiencing chronic pain. TNF- $\alpha$  levels were taken through venous blood specimens, after therapy with counter-pressure. Blood was taken serum and then performed ELISA test.

**Results:** The results showed that the TNF (pg/ml) variable had a mean of 69.19 ( $\pm 83.4$ ) pg/ml with the lowest TNF (pg/ml) 4.91558 pg/ml and TNF (pg/ml) ml the highest was 331.1973 pg/ml. Based on the 95% Confidence Interval value, it can be predicted that the population's TNF (pg/ml) is in the range of 45.73—92.65 pg/ml. 69.192 ( $\pm 83.404$ ).

**Conclusion:** The findings of this study were pressure applied during Regiosacral Counter-Pressure therapy in reducing the level of labor pain.

**Keywords:** TNF- $\alpha$  · menstrual pain · Sacral Region Counter-pressure Therapy

## 1 Introduction

Menstruation is the process of a decaying wall womb with bleeding repeated every month except during pregnancy [1, 2]. Menstruation is a cycle complex that involves

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many elements different from the body woman, including the five senses, cortex cerebral, hypothalamus, axis pituitary-ovarian, organ target like the womb and endometrial, and genitalia secondary [3]. Teenagers usually occur Between ages 10 and 16, marked with bleeding from the womb, which usually occurs 3 until 7 days every month, health, status nutrition, health woman, etc. depends on various factors [4]. Heavy body to tall body. Lots of women experience problems like dysmenorrhea During or During menstruation. Dysmenorrhea is painful in the womb and feels like a woman's moment experiencing a painful period, and dysmenorrhea which is generally experienced in all women is dysmenorrhea primary [5].

Dysmenorrhea is painful in the area pelvis consequence of menstruation and the production of prostaglandins. This often started quickly after menstruation first (menarche) [6, 7]. Dysmenorrhea classified Becomes dysmenorrhea primary and dysmenorrhea secondary. Dysmenorrhea primarily is a painful period that occurs without a problem. Dysmenorrhea is secondarily caused by a disturbance in gynecology. Estimated around 50% of all women in the whole world suffer dysmenorrhea During cycle menstruation. In the year 2015, data was collected from 1,769,425 (90%) women with dysmenorrhea. In Indonesia, the number of incident dysmenorrhea is 64.25%, consisting of dysmenorrhea primary at 54.89% and dysmenorrhea secondary at 9.36%. The number of incident painful period range from 45% to 95% of woman age fertile. In the year 2011, there is 9,019.505 teenagers Princess in Java Middle, which is 24.46 of the total population, and identified various problems of health reproduction, including dysmenorrhea [6–8].

Severe pain can be experienced by women during menstruation which results in the disruption of daily activities and is not productive, therefore therapy is needed to reduce the pain. On average, women who suffer from dysmenorrhea or menstrual cramps prefer pharmacotherapy through the use of mefenamic acid drugs which are available at the nearest store, and the consumption of herbal medicines. On the other hand, not only drug therapy but also non-drug therapy such as regiosacral counter-pressure therapy can be used to reduce menstrual pain. Regiosacral Counter-pressure therapy has been shown to effectively reduce pain levels [9, 10].

However, pressure applied to the regiosacral area can cause inflammation. Therefore, there is a need for research that can detect the inflammatory process. TNF- $\alpha$  levels are an indicator of the inflammatory process. TNF is a cytokine that can regulate immunological functions and mediate the inflammatory process in the acute phase. In humans, the TNF-gene is located on the short arm of chromosome 6 and consists of 4 exons and 3 introns. TNF- gene polymorphisms affect gene transcription and function which ultimately affect disease susceptibility [11, 12].

The results of the above phenomena are accompanied by very supportive data, thus encouraging researchers to conduct research on "The Overview of TNF- as an Inflammatory Indicator in Women Undergoing Regiosacral Counter-Pressure Therapy to Reduce Pain Levels During Menstruation". This study aims to describe the levels of TNF- as the impact of pressure applied during Regiosacral Counter-Pressure therapy in reducing the level of labor pain [13–15].

Welfare of the mother and baby and are at risk of complications of preeclampsia, birth complications, baby weight, and poor baby development. Anxiety is the beginning of the risk of complications causing psychological problems for breastfeeding mothers.

The US reports that 13% of pregnant and postpartum women have experienced anxiety within one year of change. Psychological intervention is needed in order to prevent complications of postpartum depression in breastfeeding mothers including anxiety [16]. To try and ensure that the relevant psychological interventions are efficient and effective, nonpharmacological interventions are crucial. Although it has been stated that.

## 2 Methods

The research design used Coasy Experiments, Population, and Samples in this study 51 women who experienced pain during menstruation were selected with a purposive sample. The criteria are young women who experience pain during menstruation, do not take pain-reducing drugs, are not in a condition of pain/fever, and are not experiencing chronic pain. TNF- $\alpha$  levels were taken through venous blood specimens, after therapy with counter-pressure. Blood was taken serum and then performed ELISA test. This research was conducted at the Islamic boarding school KH Sahlan Rosjidi, Muhammadiyah University, Semarang. This research has received approval for implementation by the Health Research Ethics Commission, Faculty of Public Health, the University of Muhammadiyah Semarang through the Ethical Clearance letter number 694/KEPK-FKM/UNIMUS/2022.

## 3 Results and Discussion

The results showed that the research respondents had an average age of 24.07 ( $\pm 4.10$ ) years, with the youngest age being 18 years and the oldest being 31 years. Based on the 95% confidence interval, it can be predicted that the age of women who experience menstrual pain in the population is in the range of 22.92–25.23 years.

The results showed that the TNF variable (pg/ml) had a mean of 69.19 ( $\pm 83.4$ ) pg/ml with the lowest TNF (pg/ml) 4.91558 pg/ml and TNF (pg/ml) the highest was 331.1973 pg/ml. Based on the 95% Confidence Interval value, it can be predicted that the population's TNF (pg/ml) is in the range of 45.73–92.65 pg/ml. 69.192 ( $\pm 83.404$ ). In this study, TNF levels were still within normal limits, namely 10–100 pg/ml. Increased TNF- can be an indicator of the inflammatory process through an inflammatory response mechanism, namely the release of cytokinin mediators. In this phase, the interactions between PRR and PAMP are tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), interleukin-1 (IL-1 $\beta$ ), IL-6, and CXCL-8 (IL-8). The cytokines TNF- and IL-1 activate the endothelium and recruit adhesion molecules to the endothelium, including selectin E, intracellular adhesion molecule-1 (ICAM-1), and vascular cell adhesion molecule-1 (VCAM-1). As a ligand for leukocyte integrins. In addition to this, TNF- and IL-1 increase the secretion of chemokines, as CXCL1 increases integrin affinity and leukocyte migration increases [17].

Results from a study previously show that the rate of TNF is within the range normal on age which is relatively young, because age is one of the factors which increase the rate TNF- $\alpha$ . With increased age, this produces enhancement signaling apoptosis and drop signaling continuity life [18]. This is in line with the results of this study which showed normal TNF- levels with the average age of the study sample 18–31 years.



## 4 Conclusion

From the results of the study, it was concluded that there was no increase in TNF- levels in KH Sahlan Rosjidi Islamic boarding school students, the Muhammadiyah University of Semarang who received regiosacral counter-pressure therapy to reduce pain levels during menstruation as an indicator of the absence of inflammation after therapy.

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