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Effect of Counter Pressure to Sacrum on Labour Pain of Active The Phase First Stage In Primipara

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ABSTRACT

Labour pain can affect the physiology of labour and effects prolong the labour process. Long period of labour has bad effect to the mother and her baby. One of the methods to reduce labour pain is counter pressure. The aim of this study is to know the effect of counter pressure to sacrum on labour pain of active phase first stage in primipara. This study used pre-experimental one-group pretest-posttest design and accidental sampling. A non randomized one group without controlled study was conducted between 11th January and 21st February 2009. Target population was all the primiparous admitted at Tali Kasih Maternal Clinic in West Ungaran and Asy-Syifaa Maternal Clinic in Pringapus Village, for delivery. Twenty three primiparous women expected to have a normal delivery at Tali Kasih Maternity Nursing West Ungaran and Asy-Syifaa Maternity Clinical Village Pringapus were experimental group who received counter pressure to the sacrum. The intensity of pain was measured with the Numerical Rating Scales. The data were analyzed using descriptive (frequency distribution, mean and standard deviation) and analytical method (paired sample t-Test). Mean of labour pain decreased significantly from $5,13 \pm 1,180$ to $3,30 \pm 1,020$ ($p < 0,05$). These results suggest that counter pressure to the sacrum affect labour pain. Counter pressure could be introduced as a new useful method during delivery; regarding its supportive role. It is supposed that the results of the study would introduce counter pressure as a non-pharmacological intervention during delivery to reduce the labour pain.

Keyword: counter pressure, labour pain, primipara

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Labour pain can affect the physiology of labour and effects prolong the labour process. Long period of labour has bad effect to the mother and her baby. One of the methods to reduce labour pain is counter pressure. The aim of this study is to know the effect of counter pressure to sacrum on labour pain of active phase first stage in primipara. This study used pre-experimental one-group pretest-posttest design and accidental sampling. A non randomized one group without controlled study was conducted between 11th January and 21st February 2009. Target population was all the primiparous admitted at Tali Kasih Maternal Clinic in West Ungaran and Asy-Syifaa Maternal Clinic in Pringapus Village. for delivery. Twenty three primiparous women expected to have a normal delivery at Tali Kasih Maternity Nursing West Ungaran and Asy Syifaa Maternity Clinical Village Pringapus were experimental group who received counter pressure to the sacrum. The intensity of pain was measured with the Numerical Rating Scales. The data were analyzed using descriptive (frequency distribution, mean and standard deviation) and analytical method (paired sample t-Test). Mean of labour pain decreased significantly from $5,13 \pm 1,180$ to $3,30 \pm 1,020$ ($p < 0,05$). These results suggest that counter pressure to the sacrum affect labour pain. Counter pressure could be introduced as a new useful method during delivery; regarding its supportive role. It is supposed that the results of the study would introduce counter pressure as a non-pharmacological intervention during delivery to reduce the labour pain..

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1. Background

Women during childbirth pain is unique to each woman and is influenced by various factors. These factors include culture, anxiety and fear, experience of previous birth, childbirth preparation and family support (Wong, 2002). Parity also affects labor pain response. Multipara woman's cervix to soften before the beginning of labor, therefore, not sensitive as cervical primipara women, the intensity of uterine contractions primipara women is also greater,

especially during early labor, so that the intensity of pain in older primipara women compared with multipara women (Sherwen, 1999).

A study on women in labor of stage I found that 60% primipara describe pain from hard uterus contractions, 30% experienced moderate pain and the rest experienced mild pain, whereas 45% of multipara suffered great pain, the pain was 30% and 25% mild pain (Journal Doctor Online, 2007). The pain really is one of the natural defense mechanisms of the human body, which

is a warning of danger (Suheimi, 2008). Pain associated with labor and delivery is part of the normal physiological response (Reeder, 1997). Labor pain caused by uterine contractions, cervical dilation and at the end stage I and II in time by stretching the vagina and pelvic floor to accommodate the presentation (Bennett, 2001).

Pain or discomfort during childbirth stage I caused by irregular contractions of the muscles of the uterus (Reeder, 1997). Peak pain usually occurs in the active phase (Suheimi, 2008). The increased intensity and duration of uterine contractions occurred at the beginning of this phase. Active phase ends when the opening of the cervix reaches about 7 cm. Nullipara female cervix opening of at least 1.2 cm / hour and 1.5 cm / hour in a multipara during this phase (Reeder, 1997).

Treatment consists of nonfarmakologis and pharmacological therapy. Pharmacological therapies include use of systemic analgesic, inhalation analgesia, pudendal blocks, epidural blocks, spinal blocks and general anastesia, while the method of pain treatment is nonfarmakologis including relaxation, imagery, music, distraction, hypnosis, cutaneous stimulation, acupressure, therapeutic touch and counter pressure.

Counter pressure consist of strong encouragement given at the point in the lower back during contractions using a fist, the heel of hand, or a strong object or pressure done on the side of his thighs with his hands by supporting labor or health service providers (Enkin, 1999). Counter pressure applied to areas of pain or discomfort when the contractions started. Maintained wrist with neutral and alternate between your wrists,

knuckles, elbows or knees to the sacrum. Counter pressure is being held during the contraction (Stillerman, 2008). This can make the hand fatigue that can be used two tennis balls or a bag of ice or warm water (Smith, 2008). She also can position your back against the ball and letting his body weight pressure (Stillerman, 2008). Counter pressure can also be done by a partner or helper labor press or squeeze his groin during the contraction (Snyder-Drummond, 2008).

Helper labor can provide consistently strong pressure to use the base of the palm of one hand or fist, at one point on the sacrum. Mother gives birth helpers know the right point and the amount of pressure he wants (usually a point located near the center on one of the joints sakroiliaka). Delivery helper hand placed in front of one of the front of the thigh bone to stabilize the mother and protect it from loss of balance due to the emphasis back. Counter pressure repeated every happened contraction (Nichols, 2000).

For primipara labor, pain compared to other kinds of pain is close to the pain of traumatic amputation of fingers. This pain was so great and can not be tolerated by the two-thirds of women in labor. A study on women in labor at the time of using the McGill Pain Questionnaire to assess pain found that 60% primipara describe pain from uterine contractions is very great (Intolerable, unberable, extremely severe), pain was 30%. Severe pain occurred in 45% of multipara, 30% experienced pain and 25% were mild pain (Doctor Online Journal, 2007).

2. Method

Researchers used pre-experimental one-group pretest-posttest design and accidental sample making on January

11 until February 21, 2009. Researchers measured pain scale prior to and subsequent counter pressure, then compared them to see if there is a difference between before and after giving counter pressure, so that effects of counter pressure on the sacrum of labor pain is known during stage I active phase on primipara mothers.

Criteria for inclusion in this study are as follows:

- a. Primipara mothers who give birth in Maternal Clinic of West Ungaran and Ash-Syifaa Maternal Clinic Pringapus
- b. Enough in pregnancy
- c. Fetal life, single
- d. Inpartu active phase (4-7 cm opening)
- e. Pregnancy and childbirth without complications
- f. Willing to give counter pressure on the sacrum
- g. Has not experienced rupture of membranes.
- h. Not given pharmacological therapy to reduce the pain of labor during the active phase

Counter pressure given during contractions in the active phase of stage I, the opening of the cervix reaches 4-7 cm, with strong encouragement and remained on the sacrum using a tennis ball, so in this study required an instrument of a tennis ball. Sheet Numerical Rating Scales before and after treatment is used to record pain scale before and after the mother was given counter pressure. Numerical Rating Scales Sheet contains a pain scale is a horizontal line from the left which consists of numbers 0-10 with a size of 10 cm.

3. Result and Discussion

a. Result

Table 1
Frequency distribution of pain Labor Active Phase of Stage I Before Counter Pressure on the sacrum in Maternal Clinic of West Ungaran and Ash-Syifaa Maternal Clinic Pringapus Year 2009

Category	Frequency	Percentage (%)
Moderate Pain	19	82,6
Severe Pain	4	17,4
Total	23	100

Table 2.
Average Pain Scale Labor Active Phase of Stage I Before Counter Pressure on the sacrum in Maternal Clinic of West Ungaran and Ash-Syifaa Maternal Clinic Pringapus Year 2009

Mean	Standard Deviation
5,13	1,180

Table 3.
Frequency distribution of pain Labor Active Phase of Stage I After Counter Pressure on the sacrum in Maternal Clinic of West Ungaran and Ash-Syifaa Maternal Clinic Pringapus Year 2009

Category	Frequency	Percentage (%)
Mild Pain	15	65,2
Moderate Pain	8	34,8
Total	23	100

Table 4.
Average Pain Scale Labor Active
Phase of Stage I After Counter
Pressure on the sacrum in Maternal
Clinic of West Ungaran and Ash-
Syifaa Maternal Clinic Pringapus
Year 2009

Mean	Standar Deviasi
3,30	1,020

Table 5
Paired t-Test Pain First Stage Phase
Labor Active Mother Primipara

	N	Me an	SD	T	p value
Beore counter pressure	23	5,13	1,180	5,524	0,001
After counter pressure	23	3,30	1,020		

Table 5 shows the results of paired t-test that meaningful so conclusions can be drawn is H_0 refused and H_a is received, so there are differences in pain scale before and after the counter pressure done, so there is the influence of counter pressure on the sacrum of labor pain active phase of stage I of the mother in Maternal Clinic of West Ungaran and Ash-Syifaa Maternal Clinic Pringapus.

b. Discussion

The results of the measurement of scale labor pain of active phase of stage I in 23 primiparas before and after counter pressure showed that the pain scale decreased in 18 primiparas, 2 primiparas with steady pain scale, and 3 primiparas had an increased pain scale. Eighteen primiparas who experienced labor pain reduction after given counter pressure indicated that the counter pressure affected on labor pain. Two primiparas who had steady pain scale and the 3 others who experienced an increased pain after

counter pressure was a physiological condition that in line with the progress of labor the intensity and the strength of contraction increased.

The results of this study showed the average of labor pain intensity before treatment was 5.13 to 3.3 after treatment. This was in line with research of Maryati, et al (2009) which obtained an average decrease in pain intensity between 1.75 for birth before and after which counter pressure.

Counter pressure is one of non-pharmacological methods performed to reduce the pain of labor. Gate control theory can provide a reason why this is successful. Very strong pain stimuli are believed to be ignored. Certain groups of nerve cells in the spinal cord, brainstem, and cerebral cortex have the ability to manage pain impulses through a barrier mechanism. According to the gate control theory, the sensation of pain along the nerve sensory is trasfered to the brain and only a sensation or a particular message can be transfered through neural pathways at the same time (Bobak, 2004). This theory says that pain impulses can be regulated or even suppressed by the defense mechanisms throughout the central nervous svstem. pain impoules are delivered when defense is open and it is resisted when defense is closed. The efforts to close the base defense is a pain reducing therapy (Potter, 2005).

Gate control theory proposed by Ronalk Melzack and Patrick Wall in 1965 is accepted by many experts. According to this theory there neural mechanism in the spinal cord dorsal

cornua functioning as a gateway, which can regulate peripheral nerve stimulation is the central nervous system. The gate anatomically is located in substantia gelatinosa. Nerve to stimuli transmission from peripheral afferents, the spinal cord transmission cells is regulated by the mechanism of "gate control" in the dorsal cornua. This mechanism is influenced by relative a number of large fibers and small fibers (Akib, 2008). Large myelin fibers (A-beta) have very fast conduction and deliver the stimuli rather than pain (touch, press). Small non myelin fibers (A-delta and C) have a slow conduction, and deliver the pain stimuli. Large fiber activity tends to inhibit transmission (close the gate), while small fiber activity tends to facilitate transmission (Akib, 2008).

The group of this both afferen with interact substantia gelatinosa originating in lamina II and III of the spinal cord. Substantia gelatinosa serves as modulator (gate control) of A-beta, A-delta and C. The gate will close when substantia gelatinosa (SG) is active, on the other hand when the activity SG decreases, the gate will open. The active and non active SG depends on which afferen groups are stimulated. SG becomes active and closes the gate the large fibers are stimulated thus inhibites pain stimuli transmission. This means that the stimuli leading to the center through the transmission cells are stopped or decreased. The activity of SG will decrease when the small diameter groups (A-delta and C) are stimulated, so that opens the gate. A-delta and C are fibers carryng nosiseptive stimuli, so if this fibers are stimulated, the gate will open and pain stimuli will be forwarded to the center (Kuntoro, 2007). Pain in the affected neural area with the patterns and pain

characteristics will be occurred if the stimulation of the transmission cells reaches a critical threshold (Akib, 2008). A-beta fibers are non nosiseptive stimuli conductor (non pain). To close the gate, it will need a stimulation to the large fibers (A-beta) with non-nosiseptive stimuli, for example with pressure or touch (Kuntoro, 2007).

Beside that, The "gate control" mechanism also suggests descending modulation system (from central to peripheral) (Kuntoro, 2007). Descending control system is a system of fibers derived from the inner lower and the midle brain.(especially the periaqueductal gray matter) and ends at interneuronal inhibitory fibers in the dorsal cornua of the spinal cord (Smeltzer & Bare, 2001). A balance of activity of sensory neurons and descending control fibers from the brain controls the defense mechanism. Neurons delta-A and C release P substance to transmit impulses through the defense mechanism (Potter, 2005). Substances are chemical mediators of pain. This substances are released into the extracellular tissue as a result of tissue damage that could affect the sensitivity of nerve edges or pain receptors (Smeltzer and Bare, 2001).

Descending neural groove can release neuromodulator like endogenous opiates, such as endorphins and dinorfin, a natural pain killer that comes from the body wich is able to close defense mechanism by inhibiting the release of substance P (Potter, 2005). Endorphins, enkefalin and dinorfin are substances like morphine produced by the body to inhibit the transmission of pain impulses. The term of endorphin is a combination of two words: endogenous and morphine. One effect

caused when the body releases these substances is reducing pain. Endorphins and enkefalin are chemical endogenous (produced by the body) which is structurally similar to opioids (also called opiates or narcotics). Enkefalin and endorphins and inhibit pain impulses by blocking the transmission of these impulses in the brain and spinal cord (Smeltzer and Bare, 2001).

Distraction can stimulate the production of endorphins in the descending control system (Smeltzer and Bare, 2001). Counter pressure is one of the distraction techniques to stimulate the production of endorphins in the descending control systems. This strategy to kill the pain by giving strong and steady encouragement and pressure during contraction (counter pressure) focus on a particular focal point, so can make mothers focus on particular point, so they do not focus on the contraction (Bobak, 2004).

4. Conclusion

Before counter pressure, pain experienced by primipara mothers were categorized in the pain as much as 82.6% and severe pain as much as 17.4%.

Having done counter pressure, pain experienced by primipara mothers categorized in mild pain as much as 65.2% and the pain was as much as 34

The results of statistical tests paired t-test sample obtained significance value < 0.05 , so that the counter pressure on the sacrum affect labor pain when I active phase in the primipara mothers Childbirth Ungaran The Lights of West and ash-Syifaa Polindes Pringapus.

Recomendations:

1. Counter pressure is an alternative interventions that can be used by nursing staff and other health workers to reduce labor pain, particularly in the active phase of stage I delivery.
2. Primipara mothers can encourage their husbands or families to help provide counter pressure as an effort to reduce labor pain, particularly in the active phase of stage I delivery.
3. More researches on the influence of counter pressure on the sacrum of labor pain can be done by taking into account factors that influence the perception of pain.

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