The Effect of Slump Technique Method against Pain Changes with Patient in Non-Specific Neck Pain

Sujiran¹, Muliyadi¹, Nahdia Purnamasari¹
¹Physiotherapy Study Program, Faculty of Medicine, Hasanuddin University, Makassar
purnamasarinhahdiah@gmail.com

Abstract. Non-specific neck pain is common cause of neck pain due to poor posture and mechanical disorder included pain following whiplash injury that not includes bone injury and neurological deficit. The study aims to determine the effectiveness of nerve mobilization by slump technique toward changes in the non-specific neck pain patients. The study was used quasi-experimental with time-series experimental design. The samples were 20 patients who met the inclusion criteria were patients seeking treatment at Blora and Cepu hospitals with neck pain and positive pain by slump technique with Visual Analogue Scale (VAS). The result showed 3 times of slump technique was not significant influence toward non-specific neck pain patients, p=0.025, while there was significant influence of 6 times of slump technique toward non-specific neck pain patients, p=0.000. No patient has improved condition or persistent pain after neural mobilization by slump technique method. These results indicated there was an effect of giving slump technique toward the non-specific neck patients’ pain level.

1. Introduction
The neck pain is most significant health problem in global [1]. The neck and back pain is among leading cause of disability in most of income countries and occurs in age of 25 years to 64 years old worldwide [2]. The neck pain affects two-thirds of the population and common reason for seeking health care [3]. In Indonesia, approximately 16.6% of adult population had suffered neck discomfort and 0.6% experienced neck discomfort to the severe neck pain. The neck pain incidence of neck pain increases with age and more prone in women than men.

The chronic pain is correlated with body perceptions disturbances such as swelling or numbness and lack of position sensory [4]. Therefore, chronic pain has direct influence on life quality, working life and healthcare costs [5]. Nerve mobilization of slump technique is one method treating pain which aimed restoring the nervous tissue mobility and movement around nervous surface (mechanical interfaces), reducing the pressure on the nerve which restore the nerve function [6]. Kinesio taping is used in the mechanically triggered neck pain which proved effectiveness in reduce pain by blood circulation stimulation and encourage in muscular relaxation [7].

The study is related to the effect of nerve mobilization of the slump stretching technique to pain reduction. The 6 times of slump stretching provided pain reduction effect. This technique can reduce the patient pain through intraneural edema. The study aims to determine the effectiveness of nerve mobilization by slump technique toward changes in the non-specific neck pain patients.
2. Methodology
The study was conducted in Soetijno Blora Hospital and Soeprapto Cepu Blora Hospital. This location was chosen since the local community who worked as farmers. The study was used quasi-experimental and time-series experimental design. The study population was patients seeking treatment at physiotherapy clinic of Soetijno Blora Hospital and Soeprapto Cepu Blora Hospital with total of 24 patients. The samples were 20 patients who met the inclusion criteria.

The data was collected using pain intensity value with Visual Analogue Scale (VAS). There were 3 times and 6 times were given in the slump technique treatment. The data was analysed using Wilcoxon test with SPSS program to determine the change in the pain intensity value.

3. Result and Discussion

3.1. Result
In Table 1, there were 12 respondents (60%) aged between 26 years and 35 years old and 7 respondents (35%) were aged 36 years and 45 years. Meanwhile, 12 female respondents (60%) and 8 male respondents (40%) had involved in this study. Besides, 11 respondents (55%) were civil servants and 4 respondents (20%) were farmers.

| Characteristic | N   | Percentage (%) |
|----------------|-----|----------------|
| Age (years old)|     |                |
| 26-35          | 12  | 60             |
| 36-45          | 7   | 35             |
| 46-55          | 1   | 5              |
| Total          | 20  | 100            |
| Gender         |     |                |
| Male           | 8   | 40             |
| Female         | 12  | 60             |
| Total          | 20  | 100            |
| Employment     |     |                |
| Civil servant  | 11  | 55             |
| Private workers| 5   | 25             |
| Farmers        | 4   | 20             |
| Total          | 20  | 100            |

In pre-test, 13 respondents (65%) had scored pain level in VAS and only 1 respondent (5%) was scored very strong pain in VAS. Meanwhile, 12 respondents (60%) had scored pain in VAS and 7 respondents (35%) had less pain score in VAS during 3 times of slump technique. There were 17 respondents (85%) had scored less pain and 3 respondents (15%) were scored pain in VAS during 6 times of slump technique.

| Visual Analogue | No pain (0-29 mm) | Less pain (20-49 mm) | Pain | Strong pain | Very strong pain |
|-----------------|-------------------|----------------------|------|-------------|------------------|
| N               | %                 | N                    | %   | N           | %                |
| Pretest         | 0                 | 0                    | 6   | 30          | 13               |
|                 |                   |                      |     |             | 1                |
|                 |                   |                      |     |             | 5                |
|                 |                   |                      |     |             | 0                |
|                 |                   |                      |     |             | 0                |
| Posttest        | 0                 | 0                    | 7   | 35          | 12               |
|                 |                   |                      |     |             | 60               |
|                 |                   |                      |     |             | 1                |
|                 |                   |                      |     |             | 5                |
|                 |                   |                      |     |             | 0                |
|                 |                   |                      |     |             | 0                |
The minimum and maximum of pre-test were 4 and 7 with median of 5. In additions, minimum and maximum of 3 times of slump technique were 3 and 7 with median of 5. In 6 times of slump technique, minimum and maximum were 2 and 6 with median of 4. The normality of pre-test and 3 times of slump technique were 0.010 and 0.090.

Table 3. Minimum, maximum and mean distribution in non-specific neck pain patients before and after being given a slump technique.

| Visual Analogue scale (VAS) | Median | Minimum | Maximum | Normality |
|-----------------------------|--------|---------|---------|-----------|
| Pre-test                    | 5.00   | 4       | 7       | 0.010     |
| Post-test 3x                | 5.00   | 3       | 7       | 0.090     |
| Post-test 6x                | 4.00   | 2       | 6       | 0.050     |

The Wilcoxon test showed there was significant influence of 3 times of slump technique toward non-specific neck pain level, p=0.025<0.05. Meanwhile, 6 times of slump technique had influenced toward non-specific neck pain level, p=0.000<0.05.

3.2. Discussion

The result showed slump technique reduced pain in non-specific neck pain patients. The muscle stretching was trained to elongate and affected sarcomas and fascia which reduce the overlapping between thick and thin myofilament in sarcomere, taut band that contained trigger points [8].

The reduction of overlapping between two myofilaments affected the muscle capillary vessel dilation which better blood circulation. The blood circulation improved prevents muscle fatigue, reduced metabolism build up and irritation, improves nutrients and oxygen in muscle cells.

Nerve mobilization of slump technique is an approach that provided pain relief effects which occurred in non-specific neck pain conditions through decreased in intraneural edema lead to decreased in pressure, hypoxia and other symptoms. The slump technique lead to better result to reduce antidromic produced by C fiber in the affected area resulted in neuropeptides released and subsequent inflammation in tissues.

In slump technique, the muscles are expected to deteriorate which lead decreased muscular spasm followed by reduced emphasis on the nervous tissue. In additions, gross movement restored of nerves system to the muscle tissues around the nerve system.

4. Conclusion

In conclusion, there was influence of slump technique toward non-specific neck patients pain level. The 6 times of slump technique was more significant effect than 3 times of slump technique in non-specific neck pain patients.

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