Classical Music Therapy as The Intervention to Relieve Headache in A Meningitis Patient

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Abstract

Objective: Headache is a manifestation of inflammatory response from meningeal infection. Headache may affect client physically and psychologically thus it requires treatment. This paper aimed to analyze implementation of classical music therapy as non-pharmacological intervention in relieving headache in patient with meningitis.

Methods: This was a case study to evaluate the effectiveness of classical music therapy to relieve patient’s headache. The intervention was implemented for 3 days long by playing Beethoven Symphony 6. The headache was evaluated by using McGill Pain Questionnaire.

Results: The result indicated a decrease in pain intensity from score of 8 to 6 in the third day of implementation.

Conclusion: Classical music therapy relieved headache in patient with meningitis. Nurses are suggested to implement classical music therapy on client with headache in order to relieve and alleviate pain.

Key words: Classical music, meningitis, pain

Introduction

Meningitis is a neurological inflammatory disease that causes high mortality. Among 50% not treat meningitis cases caused of brain damage and death ¹. The death from meningitis occurred in 303.500 world population 2013 due to Streptococcus pneumonia, Neisseria meningitidis, Haemophilus influenza type b, and other agents². The spread of microorganisms from meningitis is caused by various predisposing factors such as age, demography, exposure, immunity, drugs, and disease.

Headache is the most frequent symptom experienced by meningitis patients. Headache is usually persistent, or throbbing-like due to meningeal irritation³. The continuous headache can give an impact on the patient’s quality of life, can limit patients’ social life, and can increase anxiety due to the fear of the disease⁴. According to one study, the frequency of headache can be relieved by listening to music. Listening to music is a self-therapy that influences relaxation, soothing stressors, and improves sleep quality⁵.

Methods

This study was conducted on a TB meningitis client who complained of headache. The patient listened to classical music by Bethoven Symphony 6 Instrument for 12 minutes and 15 seconds on each session for three consecutive days. The evaluation used to measure the patient’s pain was the McGill Pain Questionnaire.

Results

The implementation of classical music therapy was carried out for 3 days along on June 7, 8, 9, 2018. The evaluation used the McGill Pain Questionnaire (MPQ) instrument which was translated in Indonesian to assess pain quantitatively and qualitatively.

The results of pain evaluation is presented on table 1.
Pain evaluation

<table>
<thead>
<tr>
<th>Quality</th>
<th>Day 1 Pre</th>
<th>Day 1 Post</th>
<th>Day 2 Pre</th>
<th>Day 2 Post</th>
<th>Day 3 Pre</th>
<th>Day 3 Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throbbing</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Shooting</td>
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<tr>
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</tr>
<tr>
<td>Sharp</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cramping</td>
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<tr>
<td>Hot burning</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Heavy</td>
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<td>2</td>
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<td>Tender</td>
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<tr>
<td>Tiring- exhausting</td>
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<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
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<td>Fearful</td>
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<tr>
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<td>0</td>
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</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>8</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

Discussion

Meningitis TB occurs due to inflammation in the arachnoid and piamater, and bacterial invasion of the subarachnoid space. At the process, bacteria invade through the bloodstream or areas with high vasculurization like the blood brain barrier. Furthermore, inflammation in meningitis TB produces exudates and spreads in the meningeal area that covers the cranial nerves and blood vessels in the subarachnoid.

Meningitis headache can be caused by inflammatory mediators response that induces nociceptive nerves. Based on the process, music can relieve pain by inhibiting nociceptive transmission and closing the gate control. Classical music has a frequency characteristic of 750-3000 Hertz which can be absorbed by human body toimprove respiratory function, circulation, and parts of brain activation. The process of pain barrier when listening to music involves the nervous and endocrine systems.

When listening to music, Blood Oxygenation Level Dependent (BOLD) increases so that the functional network of the brain especially auditory, limbic, and motor regions becomes active. Through MRI imaging research, BOLD activation increases in arterial cerebral stroke clients who routinely listen to music for about 10 to 20 minutes. The other parts that are activated and have an impact on the structure of the neurons are cortex, amygdala, hippocampus, and hypothalamus.

When listening to classical music, the hypothalamus becomes more active and can control levels of the cortisol hormone as a stress hormone so the client feels relax. In the hippocampus or part of the limbic system, and amygdale, there are a lot of endorphin hormones. The activation in central nerve area stimulates the release of endorphin hormones. As a result, nociceptive transmission fibers inhibited by endorphin hormones. Besides inhibiting pain transmission, the endorphin hormones gives a feeling of pleasure and relaxation.

According to the gate control theory, providing a painless stimulus can stimulate nerve fibers which block pain impulses on dorsal horn. Music therapy can inhibit neuron sensory pain. When clients listen to music, sensory input through the senses stimulates impulses in the spinal cord. Sensory music stimuli form A beta fibers will dominate, bigger, and faster than pain responses, so sensory neurons will block neuronal impulses pain. Then, the descending and sensory ascending nervous system are connected and distribute pain inhibitor fibers. These fibers contain endorphin enkephalins that activate nonnociceptive nerve fibers.

Classical music that was listened by client can relieve the quality of pain and provide psychological relaxation. This result is supported by the research of Siauta & Yusuf. There was a decrease of blood systolic pressure in the hypertensive patient and she reported the relieve of pain on the third day. Music related to human psychology can improve unconscious emotions through elements of mode, rhythm, and tempo. The effect of relaxation from this music can relieve psychological problems of fear of pain so that it has been developed as a therapeutic method. This supports the results of music therapy on our client, Mrs. E who reported that her tiring feeling of headache diminished on the third day.

The client took initiative to listen to music then the pain began. On the third day, the client looked more excited and was able to talk with nurses longer than the first day of intervention.

Conclusions

Headache in meningitis occurs due to inflammatory response from infection resulting in exudates and irritating meninges. Meningitis headaches affect the physiology of the body and psychologically and therefore requires management to relieve pain. The intervention that can be given to clients with meningitis headache is with classical music therapy. This intervention can expedite brain blood flow, reduce pressure on clients. The intervention have been applied to clients for 3 consecutive days. The results of our study showed that classical music therapy can relieve the intensity of headaches and reduce the emotional stress of clients.

References


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