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Effectiveness of a Brain Protector Combining Murattal Al-Qur'an on Hemodynamics in Patients with Intracerebral Hemorrhage: Case Report

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Abstract
Introduction*: Intracerebral hemorrhage (ICH) is a significant global health concern associated with high mortality rates and severe neurological deficits. This study examines the effectiveness of combining citicoline, a neuroprotective agent, with Murattal Al-Qur'an therapy, a non-pharmacological intervention, in managing hemodynamics.* ***Method:*** *A single-case descriptive study was conducted on a 60-year-old male patient diagnosed with hemorrhagic stroke.* ***Results and Discussion:*** *Intervention resulted shows that combining citicoline with Murattal Al-Qur'an therapy improved hemodynamic parameters and consciousness levels by protect and stabilizing brain function with citicoline and inducing relaxation and endorphin release with Murattal Al-Qur'an therapy.* ***Conclusion:*** *Integrating citicoline with Murattal Al-Qur'an therapy offers a promising approach to managing hemodynamics and improving outcomes for patients with intracerebral hemorrhage (ICH), particularly in enhancing Glasgow Coma Scale (GCS) scores.*

Keywords: Brain Protector; Murattal Al-Qur'an; Hemodynamics; Intracerebral Hemorrhagea; Glasgow Coma Scale;

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Introduction

Intracerebral hemorrhage (ICH) is a critical global health issue, representing 10-15% of strokes in the United States, Europe, and Australia, and 20-30% in Asia. It has a 40% 30-day mortality rate, with survivors often experiencing major neurological deficits, and only 20% achieving functional independence at 6 months (Tschoe et al., 2020). The management of hemorrhagic stroke typically involves the use of medications as brain protectors, aiming to reduce brain swelling, decrease intracranial perfusion pressure, and alleviate hypertension, all of which are associated with a poor prognosis for patients (Wan et al., 2023). One of the medications often considered for its neuroprotective potential effect is citicoline, which is safe and does not cause complications (Maryam Azizah, 2024).

Citicoline's mechanism of action involves supporting the synthesis of phosphatidylcholine, a crucial component of cell membranes necessary for maintaining cell structure and function (Feigin et al., 2022). Additionally, citicoline reduces glutamate levels and inhibits caspase activation, which helps inhibit neuroinflammation caused by conditions involving blood vessel rupture and hematoma formation (Endyjulianto et al., 2024). Considering these advantages, the persistent challenge of hemodynamic and consciousness deterioration in hemorrhagic stroke patients still requires attention. Recent findings by (Messina et al., 2022) highlight that advanced hemodynamic monitoring combined with complementary interventions significantly improves stability and outcomes in stroke management. This underscores the necessity of integrating pharmacological treatments with non-pharmacological therapies for comprehensive care.

One such promising alternative intervention is Murattal al-Qur'an therapy, which has shown potential in alleviating physiological changes and promoting recovery (Risnah, 2021). Murattal is the Quran recitation that emerges as a non-pharmacological treatment that excels in creating calmness and a sense of peace, surpassing other auditory therapies due to its religious and highly spirituality (Ifati et al., 2020). Recitation therapy of the Al-Qur'an has been proven to increase awareness, enhance mood, promote relaxation, and reduce anxiety and hypertension in many cases (Nazir, 2023). In cases of hemorrhagic stroke, murattal therapy offers a non-pharmacological approach to managing physiological changes in patients with brain injuries (Melastuti et al., 2020).

Murattal al-Qur’an works by stimulating the formation of alpha waves in the brain, which alleviates mental symptoms such as pain and stress. This activation of alpha EEG (Electroencephalogram) waves helps maintain cardiac synchronicity, aiding in physiological recovery after periods of homeostatic depletion (Melastuti et al., 2020). The relaxing effects of Murattal therapy have demonstrated a reduction in blood pressure among hypertensive patients, suggesting its potential in addressing the multifaceted challenges of hemorrhagic stroke patients (Risnah et al., 2021). Therefore, this study aims to assess the impact of this intervention on hemodynamics, including parameters such as mean arterial pressure (MAP), blood pressure, oxygen saturation, and the Glasgow Coma Scale (GCS)

Method

This study utilizes a descriptive approach with a case study design, focusing on the application of a brain protector combining Murattal Al-Qur'an to manage hemodynamics in patients with intracerebral hemorrhage. The study includes one patient, a 60-year-old male, who presented at Hospital with hemorrhagic stroke that given a combination of murattal al-qur'an and will be observe the effects of the intervention on hemodynamics, including parameters such as (MAP) mean arterial pressure, blood pressure, oxygen saturation, and (GCS) glasgow coma scale, in patients with intracerebral hemorrhage.

Before the intervention, consent was obtained from the patients' families due to the patients' unconscious state. Following the administration of the brain protector medication, the patients' hemodynamics, and GCS were assessed. Subsequently, the patients were monitored in the resuscitation room to ensure stability before being transferred to the ICU (Intensive Care Unit). Murattal Al-Qur'an, specifically Juz 30 with the Nahawand recitation by Sheikh Abdurrahman Al-Ausy, was played to the patients for 30 minutes during each session, and their condition was observed. This process was repeated over a total of 3 hours and 5 sessions with the audio played through speakers at a volume of 60%.

The case report includes detailed descriptions of the patients' cases, including their complaints, location of hemorrhage, intensity of symptoms, signs, and symptoms, as well as their disease history, disease development process, nursing challenges, and factors influencing their condition. Patient's conditions are documented using the ER (Emergency Room) observation sheet to record patient conditions and will be presented in a table in the research results.

Result and Discussions

1. Result

Based on the assessment, a 60-year-old male presented to the Hospital with a hemorrhagic stroke, reporting a sudden headache followed by loss of consciousness. On examination, the patient was somnolent with a GCS score of 9. His blood pressure was 210/133 mmHg, MAP 134 mmHg, heart rate was 158 bpm, respiratory rate was 26 breaths per minute, and oxygen saturation was 96% with a nasal cannula at 4 liters per minute. The patient received 500 mg of citicoline administered via intravenous injection to stabilize brain function and prevent further deterioration. Diagnostic tests revealed an intracerebral hemorrhagic stroke with cerebral edema, cardiomegaly, sinus arrhythmia on ECG (Electrocardiogram), and laboratory abnormalities including leukocytosis, elevated erythrocyte sedimentation rate, and abnormal liver function tests. The patient had a history of uncontrolled hypertension and uric acid for over 10 years. Throughout the treatment period, the patient underwent a combination of pharmacological and non-pharmacological interventions. Pharmacological treatment involved administering 500 mg of citicoline intravenously, followed by non-pharmacological therapy consisting of listening to Murattal Al-Quran Juz 30 with the Nahawand recitation by Sheikh Abdurrahman Al-Ausy.

This therapy was conducted via a speaker at 60% volume during five sessions, each lasting 30 minutes. Observations were documented using the ER observation sheet, as depicted in the table below:

Table 1
Hemodynamics Monitoring Sheet

No.	Time	BP	MAP	SPO	HR	RR	GCS
1.	11.40	210/133 mmHg	158	96%	134	26x/m	9
2.	11.10	205/130 mmHg	155	98%	125	24x/m	9
3.	12.40	188/105 mmHg	132	99%	118	23x/m	10
4.	13.10	180/98 mmHg	125	100%	108	21x/m	11
5.	13.40	175/93 mmHg	120	100%	105	20x/m	12

Source: Primary Data 2024

The results indicated a significant improvement in the patient's condition. The progressive decreases the blood pressure from 210/133 mmHg to 175/93 mmHg suggests improved vascular tone and reduced intracranial pressure. This decrease was accompanied by a corresponding decrease in mean arterial pressure icu from 158 to 120, indicating improved hemodynamic stability. Additionally, the decrease in heart rate from 133 to 105 beats per minute and in respiratory rate from 26 to 20 breaths per minute suggests a reduction in physiological stress and improved cardiovascular function. The improvement in the patient's GCS score from 9 E:3 V:3 M:3 to 12 E:4 V:4 M:6 suggests an enhancement in his level of consciousness, possibly due to improved cerebral perfusion and brain function.

These findings demonstrate the effectiveness of the combined intervention in managing hemodynamics and improving the overall condition of patients with intracerebral hemorrhage. The results suggest that the use of citicoline and non-pharmacological therapy, such as listening to Al-Quran, can lead to significant improvements in hemodynamic stability, consciousness level, and overall patient outcomes

2. Discussion

Murattal, derived from "ratala," symbolizes meticulous and beautiful recitation, while "ritl" underscores its harmony and beauty (Al-Qazwīnī, 2019). Studies indicate that listening to Murattal can heightens endorphin release and facilitates muscle relaxation (Setiawan et al., 2022). Additionally, reciting concise Quranic verses has been linked to improved belief reinforcement, focus, and reduced anxiety hormones, promoting physiological balance and aiding in blood pressure reduction (Sulistyowati & Daniel Hasibuan, 2021). Recent literature also highlights the therapeutic potential of Murattal Al-Qur'an therapy, a non-pharmacological intervention, in regulating hemodynamics and enhancing consciousness levels (Heni & Syifaa, 2021). While Murattal therapy offers

significant non-pharmacological benefits, the integration of pharmacological treatments, particularly citicoline, provides a comprehensive approach to neurological care.

Citicoline is widely acknowledged for its effectiveness in brain treatment, particularly in alleviating intracranial pressure associated with bleeding strokes (Trimmel et al., 2022). Supporting studies suggest its potential in protecting and repairing the brain across various conditions such as neurodegenerative diseases, strokes, and traumatic injuries (Secades et al., 2023). Recent research, backed by the consensus among Austrian medical professionals, highlights citicoline's promising role in enhancing survival rates and promoting recovery in severe head injury cases (Jasielski et al., 2020). However, while citicoline shows promise, further investigation is warranted to understand its long-term effects on consciousness levels in brain injury patients, as recent findings did not demonstrate significant differences between treated and control groups over a 6-month period (Mehdi et al., 2023).

On the other hand, there is a literature reviews demonstrate that Murattal Al-Quran therapy improves consciousness levels, as indicated by enhanced GCS scores (Yusuf & Rahman, 2019). Analysis of six studies supports Murattal therapy as an effective non-pharmacological intervention due to its simplicity and minimal resource requirements, aligning with Quranic teachings, thereby enhancing its appeal (Risnah et al., 2021). However, research on combining Murattal therapy with pharmacological treatments is limited, presenting a gap in current understanding. The combination of these interventions holds significant potential for enhancing patient outcomes, as demonstrated by a study by Filya Kharti Gempitasari, (2019) which discovered that a 30° head elevation combined with Murattal therapy produced significant outcomes for stroke patients. This supports the notion that non-pharmacological interventions, such as Murattal Al-Qur'an therapy, can effectively manage hemodynamics in various clinical settings and aid in recovery after stroke attacks.

Conclusion

The study's findings support the effectiveness of a combined intervention of citicoline and Murattal Al-Qur'an therapy in managing hemodynamics in patients with intracerebral hemorrhage. The intervention led to significant improvements in hemodynamic parameters, including a decrease in mean arterial pressure and blood pressure while increasing in oxygen saturation and glasgow coma scale. These results suggest that the combined approach may offer significant benefits in improving patient outcomes, indicating the need for further investigation in larger clinical studies.

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