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Abstract: Enhancing Neurocritical Care with Artificial Intelligence: A Case Study Utilizing ChatGPT in the Management of Subarachnoid and Intracerebral Hemorrhage.

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Background:
Subarachnoid hemorrhage (SAH) from a ruptured middle cerebral artery (MCA) aneurysm carries high morbidity and mortality, necessitating prompt, evidence-based interventions. Artificial intelligence (AI) tools like ChatGPT offer rapid access to guidelines and expert recommendations, potentially optimizing neurocritical care.

Objective:
This study evaluates the role of ChatGPT in the management of a 55-year-old female with SAH and intracerebral hemorrhage (ICH), assessing its impact on treatment efficacy, clinician workload, and patient outcomes.

Case Presentation:
The patient presented with sudden severe headache, disorientation, nausea, and vomiting. CT imaging confirmed SAH and left ICH due to a ruptured MCA aneurysm. With a Glasgow Coma Scale (GCS) of 7/15, she was intubated and underwent aneurysm clipping. In the ICU, ChatGPT was used to supplement decision-making on:
Blood pressure control, osmotherapy, and sedation for intracranial hypertension.
Prophylaxis against delayed cerebral ischemia, pneumonia, and deep vein thrombosis.
Antibiotic selection, fever management, and nutritional support.

Results:
With multidisciplinary management augmented by ChatGPT, the patient achieved significant recovery, improving to GCS 14/15 at discharge after 21 ICU days. The AI tool facilitated adherence to best practices, reducing errors and enhancing workflow efficiency.

Discussion & Conclusion:
ChatGPT provided reliable, evidence-based recommendations, complementing clinical expertise without replacing judgment. While challenges remain in AI integration, this case underscores its potential in neurocritical care. Future advancements in AI-driven real-time analytics and personalized medicine could further revolutionize patient management.

Keywords:
Artificial Intelligence, ChatGPT, Subarachnoid Hemorrhage, Intracerebral Hemorrhage, Neurocritical Care, Biomedical Informatics.