



ABSTRACT

The Role of Hyperglycemia in In-Hospital Mortality of Acute Ischemic Stroke Patients

Balqis Khoirunnisa¹, dr. Ahmad Asmedi², dr. Dhite Bayu Nugroho¹

¹Department of Neurology RSUP Dr. Sardjito

²Faculty of Medicine, Public Health, and Nursing

Universitas Gadjah Mada

Background Stroke has become the number one cause of death in Indonesia, killing 328.5 thousand people (21.2% of total deaths) in 2012 according to WHO. Among countries in Asia, Indonesia has the highest stroke mortality rate with age-sex standardized mortality in 2010 at 193.3/100,000 person-years. Yogyakarta currently holds the position for 2nd highest province with diagnosed stroke patients, as stated by the latest general health research conducted released by Indonesia's Ministry of health. Thus, research on risk factors, assessment, and treatment of stroke continues to be of high importance as stroke continues to become a major cause of mortality in Indonesia. Diabetes has been identified as one of the key modifiable factors of stroke (WHO, 2016). Hyperglycemia is a hallmark sign of diabetes and prediabetes, with diabetes being the most common cause of the phenomenon. With the increased prevalence of diabetes and stroke contributing to the world's major burden of disease, multiple studies have aimed to find a link between hyperglycemia with the outcome of acute ischemic stroke patients and this study intends to further solidify previous studies.

Objective The objective of the study is to review the role of hyperglycemia during admission in in-hospital mortality of acute ischemic patients.

Method This study will be a mini review of 7 previous studies investigating the role of hyperglycemia during admission in in-hospital mortality of acute ischemic stroke patients. This study was a modification of the intended research design considering the current ongoing COVID-19 pandemic which has obstructed primary data collection. This study took 136 studies from keyword searches from eligible databases such as PubMed and Science Direct and was identified, screened, checked for eligibility before finally 7 journals were included. The selected journals then underwent risk of bias appraisal using the Joanna Briggs Institute tool of appraisal for observational studies.

Result All the observational studies included in this review have linked hyperglycemia as a predictor of short-term stroke mortality. The theories surrounding the role of hyperglycemia as a prognostic factor in in-hospital mortality of acute ischemic stroke patients arises from 4 main ideas: (1) Impaired recanalization of the ischemic penumbra, (2) Decreased reperfusion to the ischemic penumbra, (3) Increased reperfusion injury, (4) Direct tissue injury.

Conclusion Hyperglycemia during admission has a prognostic role in the outcome of in-hospital mortality in acute ischemic stroke patients. Hyperglycemia also effects the efficacy of treatments of acute ischemic stroke and patients should be monitored tightly during the rehabilitation stage to prevent in-hospital mortality.

Keywords: Hyperglycemia, Acute Ischemic Stroke, In-Hospital Mortality