

THE IMPACT OF PREVENTIVE MEDICATIONS AND FACTORS RELATED TO ACUTE ISCHEMIC STROKE ON OUTCOMES: MULTIMODAL PREVENTIVE MEDICATION APPROACH

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ABSTRACT

Acute ischemic stroke is a global health problem and is among the leading causes of morbidity and mortality. As prevention is considered the mainstay of management for acute ischemic stroke, knowledge should be highlighted regarding the scientific evidence behind the use of preventive medications and their impact on patients' outcomes. The objective of the study is to evaluate the impact of the previous use of angiotensin-converting enzyme inhibitor (ACEI), antiplatelet and statin, either alone or in combinations on reducing in-hospital mortality rates, improving functional status at discharge and reducing complications after ischemic stroke. In addition, the independent factors associated with the occurrence of these ischemic stroke outcomes have been investigated.

An observational retrospective cohort design was used for all acute ischemic stroke patients admitted to Hospital Pulau Pinang during the period from January 1st 2008 to June 30th 2009. Data included socio-demographic characteristics, clinical characteristics, and previous medication classes, with particular attention being paid to antiplatelets, ACEIs and statins. Impact of the previous use of these medications on ischemic stroke outcomes included: the in-hospital mortality rate, a good functional status as defined by the Barthel Index (BI) ≥ 75 , and post-stroke complications, was evaluated after controlling for other variables (i.e. socio-demographic, clinical

characteristics, risk factors and other medications) that might have confounded the effects of these preventive medications on ischemic stroke outcomes.

Overall, 854 patients met the inclusion criteria. After controlling for possible confounders; the previous use of ACEI alone or in combination with antiplatelet and/or statin medications was found to significantly reduce the risk of mortality during hospitalization, with the highest chance in reducing the mortality was among patients using the three-medication combination. In addition, among the stroke survivors, the two-medication combinations of “antiplatelet and ACEI”, “antiplatelet and statin”, or “ACEI and statin”, or the three-medication combination can increase the odds of discharge with a good functional status by approximately five times higher compared to patients who did not take preventive medications, and having higher odds compared to patients who took only one medication from different groups. Moreover, high chances of reducing the risk of post-stroke complications were significantly observed among the patients who were on ACEI. The use of ACEI and statin in combination, and the three-medication combination, had significantly the highest odds in reducing the occurrence of complications. The occurrence of in-hospital mortality, being discharged with good functional status, or the exposure to post-stroke complications, might be predicted from specific clinical characteristics, vital signs on admission, risk factors, and the non-use of preventive medications.

We conclude that the highest odds of improving functional outcome and reducing the rates of mortality and complications after ischemic stroke were observed in patients who were taking the three-medication combination of antiplatelet, ACEI and statin. The finding appear to endorse the use of this combination in individuals at risk and in patients diagnosed with ischemic stroke and for the early initiation of this combination therapy after stroke to improve ischemic stroke outcomes. Additionally, an increased

knowledge of the most predictive variables of acute ischemic stroke outcomes can assist clinicians in identifying patients at higher risk of morbidity and mortality, and thus may influence management decisions.