

# Dual Versus Mono Antiplatelet Therapy for Acute Non- Cardio Embolic Ischemic Stroke or Transient Ischemic Attack

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## Abstract

New evidence on the efficacy and safety of dual antiplatelet therapy for secondary stroke prevention has been realized in the recent years. An updated meta-analysis was done to determine the effect of the various dual antiplatelets (including ticagrelor and cilostazol) vs aspirin alone on recurrence rate of ischemic stroke, cardiovascular morbidity and mortality, and its safety profile as reported through major bleeding.

## Introduction:

Ischemic stroke is a far the most common type of stroke accounting for an approximately 80–90% of all strokes. According to World Health Organization (WHO) the cerebrovascular accidents or stroke are the second leading cause of mortality and the third leading cause of morbidity. It is a condition in which a region of the brain is deprived of blood flow which results to hypoxia of brain cells leads to the cell death and thereby resulting to the focal neurologic deficits depending on the area of damage. Transient ischemic attack on the other hand presents a similarly with an ischemic strokes but do not leave the evidence of damaged tissue. Transient impairment of blood flow occurs which reverses spontaneously without intervention.

Stroke is the only leading cause of long disability. In addition to the initial damage progression of focal deficits result to unfavorable outcomes. In past decades the intensive therapeutic and interventional strategies have been investigated to reduce the disability and recurrence of the stroke. According to Aoki, et al. the intravenous thrombolysis, endovascular therapy and aspirin have played key roles in reducing the stroke recurrence. Lifted from several prospective randomized controlled trials such as the ‘chance’ and point trials. The addition of clopidogrel to aspirin significantly decreased the neurologic deterioration in patients with acute non cardioembolic ischemic strokes. Other dual antiplatelet therapies have also been showed the positive impact. The management of ischemic strokes which have given rise to the several systematic reviews and also meta-analysis of these drugs. However, the subsequent pilot studies with a small population size involving antiplatelet drugs such as ticagrelor and cilostazol. When combined with aspirin did not confirm whether the clinical outcomes of patients with acute stroke would improve.

Two recent randomized control trials were published on the use of Cilostazol with Aspirin and Ticagrelor with Aspirin vs. Aspirin alone which were not included in the meta-analysis by Yang Y, et al., on Dual vs. Mono Antiplatelet Therapy for Acute Non-Cardioembolic Ischemic Stroke. These two additional randomized controlled trials provided the data that was used to update the current management of secondary prevention of acute

ischemic stroke. Hence, the aim of this study was to present an updated systematic review involving several antiplatelets that are combined with aspirin as a dual therapy vs. aspirin alone in its effect to a recurrence of stroke in patients who have suffered from acute stroke composite events such cardiovascular morbidity and mortality. Safety as measured through major bleeding, among patients who have suffered from an acute non cardioembolic stroke.

## Objectives:

The general objective of this study was to determine the effect of the various dual antiplatelets that including ticagrelor and cilostazol vs. aspirin alone on recurrence rate of ischemic stroke. Composite events like cardiovascular morbidity – acute coronary syndrome, and mortality, and its safety profile as reported through the major bleeding. In this study all randomized trials used had an acute stroke or transient ischemic attack time frame of less than 72 hours.

## Methods:

PubMed, Cochrane and Science Direct data bases were utilized, RCTs evaluating dual antiplatelet vs mono antiplatelet therapy for acute ischemic stroke or transient ischemic attack within < 72 hours from ictus were searched up to July 2019. Risk ratio at 95% confidence intervals was calculated to evaluate stroke recurrence, cardiac events and mortality, and major bleeding.

## Results:

Sixteen studies in the previous meta-analysis were included. Those excluded were trials where in the monotherapy treatment was not aspirin for uniformity of the control drug. Based on the relevant studies from January 2016 to June 2019. The data base searching and citation tracking of references identified 53,082, by using Boolean function. 44 trials were excluded and 6 randomized control trials were reviewed by full text for details and 4 of which were excluded due to the missing data wherein all channels to retrieve it were exhausted. Therefore 2 eligible randomized controlled trial were identified. Both of which compared its efficacy and safety versus aspirin in patients with acute non-cardioembolic ischemic stroke or transient ischemic attack.

## Conclusion:

In acute non-cardioembolic ischemic strokes or those who have suffered a transient ischemic attack the dual antiplatelet therapy was associated with efficacy in stroke recurrence and composite cardiac events with a non-significant risk of major bleeding. Among patients with an acute non-cardioembolic ischemic stroke or transient ischemic attack within 72 h of ictus. Dual

antiplatelet therapy was associated with an reduction in stroke recurrence and composite events such as Acute Coronary Syndrome and Cardiac related deaths when compared to the monotherapy. However, the dual antiplatelet therapy shows the decreased safety profile due to the possible. Although not statistically significant events of major bleeding as observed in this study. Factors that may have contributed to increased risk of major bleeding were the dosing and duration of treatment given.

In conclusion the current data suggests that administration of short term dual antiplatelet therapy in the acute phase of ischemic stroke or transient ischemic attack was efficacious and relatively safe of which Cilostazol with Aspirin can be potential for standard treatment due to its evidence in reduction of stroke recurrence and being the most cost efficient combination although with not statistically significant bleeding risk.