Service Priorities and Programmes

Electronic Presentations

Convention ID: 1081
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Post title: Registered Nurse, Prince of Wales Hospital

The Use of Handheld ECG Monitoring in Acute Ischemic Stroke during Hospitalization in Hong Kong

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Keywords:
Acute Ischemic Stroke
Atrial Fibrillation
Transient Ischemic Attack
Electrocardiogram

Introduction

Stroke is a leading cause of mortality, morbidity and rising healthcare cost worldwide. At least one in three strokes is directly attributable to atrial fibrillation (AF). AF confers a fivefold increase in stroke risk. AF-related strokes are highly preventable by oral anti-coagulation therapy which reduces the risk of stroke by 60-70%.
Currently, 12-lead electrocardiogram (ECG) and 24-hour holter monitor are the standard investigations for paroxysmal AF (pAF) detection but they are time consuming and not easily obtainable. In this study, a new hand-held ECG monitoring devices for AF detection was utilized by nurse in acute stroke unit. This mobile ECG monitoring device could record a one lead ECG which is automatically analyzed for the presence of AF.

Objectives

To compare the proportion of patients with ischemic stroke or transient ischemic attack (TIA) with new pAF detected by handheld ECG monitoring device, with current standard testing (24-hour holter monitoring, 12-lead ECG and cardiac telemetry) when available.

Methodology

The study was conducted in acute stroke unit of Prince of Wales Hospital. Patients with ischemic stroke not associated with known AF were potentially eligible for this study. We excluded patients with known AF history or AF detected by the 12-lead ECG on admission. For those eligible participants, they all received 30 seconds of ECG monitoring intermittently during hospitalization as the same frequency as vital signs monitoring by nurse. Holter monitor was arranged as comparison among these subjects.

Result

In total, 50 stroke patients (20 women, 30 men) were recruited. The mean age was 67 years old. AF was detected in 3 out of 50 (6%) patients by the handheld ECG monitoring device.

A handheld ECG monitoring device is easily available for AF detection at acute stroke unit that will affect the management for stroke prevention. Therefore, further study should be carried out to validate the clinical use of this device for screening of AF.