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Review

Challenges and solutions in medically managed ACS in the Asia-Pacific region: Expert recommendations from the Asia-Pacific ACS Medical Management Working Group

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ABSTRACT

Acute coronary syndromes (ACS) remain a leading cause of mortality and morbidity in the Asia-Pacific (APAC) region. International guidelines advocate invasive procedures in all but low-risk ACS patients; however, a high proportion of ACS patients in the APAC region receive solely medical management due to a combination of unique geographical, socioeconomic, and population-specific barriers. The APAC ACS Medical Management Working Group recently convened to discuss the ACS medical management landscape in the APAC region. Local and international ACS guidelines and the global and APAC clinical evidence-base for medical management of ACS were reviewed. Challenges in the provision of optimal care for these patients were identified and broadly categorized into issues related to (1) accessibility/systems of care, (2) risk stratification, (3) education, (4) optimization of pharmacotherapy, and (5) cost/affordability. While ACS guidelines clearly represent a valuable standard of care, the group concluded that these challenges can be best met by establishing cardiac networks and individual hospital models/clinical pathways taking into account local risk factors (including socioeconomic status), affordability and availability of pharmacotherapies/invasive facilities, and the nature of local healthcare systems. Potential solutions central to the optimization of ACS medical management in the APAC region are outlined with specific recommendations.

Abbreviations: ACACIA, Australian Acute Coronary Syndromes Prospective Audit; ACCORD, ACute CORonary syndromes Descriptive study; ACCF, American College of Cardiology Foundation; ACEi, angiotensin-converting enzyme inhibitor; ACS, acute coronary syndromes; ADPi, adenosine diphosphate inhibitor; AHA, American Heart Association; ANZACS QI, All New Zealand ACS Quality Improvement; APAC, Asia-Pacific; ARB, angiotensin receptor blockers; BB, beta-blockers; BRIG, Bridging the Gap; CABG, coronary artery bypass graft; CHD, coronary heart disease; CKD, chronic kidney disease; CPACS, Clinical Pathway for Acute Coronary Syndrome in China; CRUSADE, Can Rapid risk stratification of Unstable angina patients Suppress ADverse outcomes with Early implementation of the ACC/AHA guidelines; CVD, cardiovascular disease; CURE, Clopidogrel in Unstable Angina to Prevent Recurrent Events; DAPT, dual antiplatelet therapy; ECG, electrocardiogram; EPICOR, long-tErm follow-uP of antithrombotic management patterns In acute CORonary syndrome patients; ER, emergency room; GP, glycoprotein; ESC, European Society of Cardiology; GRACE, Global Registry of Acute Coronary Events; HOTPR, high on-treatment platelet reactivity; JAC, Jakarta ACS; LDL-C, low-density lipoprotein cholesterol; LMWH, low molecular weight heparin; LV, left ventricular; MI, myocardial infarction; NCVD, National Cardiovascular Disease Database; NSTEMI, non-ST-elevation myocardial infarction; PCI, percutaneous coronary intervention; PLATO, PLATelet inhibition and patient Outcomes; PURE, Prospective Urban Rural Epidemiology; PURSUIT, platelet glycoprotein IIb/IIIa in unstable angina: receptor suppression using integrilin therapy; STEMI, ST-elevation myocardial infarction; T-ACCORD, Taiwan Acute Coronary Syndrome Descriptive Registry; TIMI, Thrombolysis in Myocardial Infarction; TSOC, Taiwan Society of Cardiology; TNK, teneceteplase; tPA, tissue plasminogen activator; UA, unstable angina; UF, unfractionated heparin.

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1. Introduction

Management of acute coronary syndromes (ACS) differs between countries in the Asia-Pacific (APAC) region and there is high variability in outcomes. Reported in-hospital mortality rates are generally poorer than reported globally [1,2], but vary from less than 2% in Taiwan [3] to 13% in Thailand [4]. Post-discharge 12-month mortality in the region exceeds that seen internationally [5,6], with rates of 18–25% reported in patients with ST-elevation myocardial infarction (STEMI) in some provinces of China [7].

Many ACS patients in the region – up to approximately 80% in Malaysia [8] – are treated with conservative or with purely medical management strategies, despite evidence-based guidelines that advocate invasive treatment in all but low-risk ACS patients [9–21]. Underlying this observation is a combination of unique geographical, socioeconomic, and population-specific barriers. APAC countries are diverse in size and population distribution and include a variety of models of healthcare provision and resourcing that influence how ACS patients are treated. Access to pharmacotherapy – an integral part of all treatment strategies – differs between countries, and cultural factors influence the acceptability of some therapies/interventions. Risk factors vary, with high rates of diabetes and smoking in some countries. Furthermore, genetic differences resulting from the multi-ethnic profile of the APAC region can influence outcomes and response to therapy.

In November 2013, the APAC ACS Medical Management Working Group convened to review local and international ACS guidelines for medical management of ACS in the context of real-world practice in the region. Based on a systematic literature review (Supplementary Table I), the group assessed the relative strengths of the supporting global and APAC evidence base, with particular focus on the medically managed ACS population. The group identified and made initial recommendations to address five key challenges/unmet needs in ACS medical management in the APAC region: (1) accessibility/systems of care; (2) risk stratification; (3) education; (4) optimization of pharmacotherapy and (5) cost/affordability. This article provides a summary of the Group's discussions and initial recommendations that were proposed to improve outcomes in ACS within the region.

2. Optimal ACS medical management: review of guidelines

Australia/New Zealand, China, India, Malaysia, Philippines, and Taiwan have their own local guidelines for management of ACS [10,12–20,22–26]. Other APAC countries rely largely on the US American College of Cardiology Foundation/American Heart Association (ACCF/AHA) and European Society of Cardiology (ESC) guidelines for management of STEMI and non-ST-segment elevation myocardial infarction (NSTEMI)/unstable angina (UA) [9,13,14,19,21,27,28], with some local modification by national reimbursement authorities (Table 1).

2.1. Risk stratification

Guidelines recommend early assessment of patients presenting with chest pain or other ischemic symptoms to enable stratification according to risk of death/cardiovascular events. Initial steps involve a 12-lead electrocardiogram (ECG) to detect ischemic changes/arrhythmias performed within 10 min of first medical contact, and cardiac enzyme testing [9,13,15,17–21,26], preferably with troponin (T or I) [9,13,17–21]. The prior standard diagnostic test for creatine-kinase isoenzyme MB is no longer routinely used (beyond suspicion of re-infarction) in many APAC countries, and high-sensitivity troponin assays, which enable shorter evaluation times, are becoming more routine [24]. Guidelines differ in their promotion of formal risk stratification tools: ESC and New Zealand guidelines advocate use of the Global Registry of Acute Coronary Events (GRACE) risk score, while Indian guidelines focus on the Thrombolysis in Myocardial Infarction (TIMI) score, and others (including ACCF/AHA guidelines) indicate no preference [10,13,14,17,18,22].

2.2. Criteria for conservative/medical management

The benefit of percutaneous coronary intervention (PCI) on ACS outcomes is now widely recognized and existing guidelines concur in advocating invasive procedures in all but low-risk ACS patients, where feasible (Table 2) [9–21].

When reperfusion with fibrinolytic therapy is indicated as the primary treatment strategy in patients with STEMI, there is broad agreement between global and APAC guidelines on a door to needle time

Table 1
Overview of main international and APAC ACS guidelines.

Country/region	STEMI	NSTEMI/UA	Other relevant guidelines
USA	ACCF/AHA (2013) [19]	ACCF/AHA (2012) [9,14]	ACCF/AHA — secondary prevention (2011) [28] ACCP — primary and secondary prevention (2012) [126,127] ACCP — antithrombotic therapy (2012) [127]
Europe	ESC (2012) [21]	ESC (2011) [13,134]	ESC — CVD prevention (2012) [27]
Australia/New Zealand	New Zealand Branch of CSANZ (2013) [20]	New Zealand Branch of CSANZ (2012) [18]	NHFA Australia and CSANZ (2011) [24,135,136] ARC and NZRC Guideline (Initial medical therapy 2011) [23]
Canada			Canadian Cardiovascular Society — use of antiplatelet therapy (2011 and 2013) [29,128]
China	CSC CMA (2010) [22]	CSC CMA (2012) [12]	Chinese Expert Consensus for Antiplatelet Therapy in Non-Revascularization Patients with Acute Coronary Syndrome Working Group (2011) [25]
India	Association of Physicians India (2011) [10]		
Indonesia	Indonesian Heart Association ACS Guidelines (2014) [137]	Indonesian Heart Association ACS Guidelines (2014) [137]	
Japan			JCS Joint Working Group — secondary prevention (2013) [138]
Malaysia	MOH/NHFA/AMM 2007 [16]	MOH/NHFA/AMM 2011 [17]	
Philippines	PHA (2009) [26]	PHA (2009) [26]	
Taiwan	TSOC (2012) [15]		
Gulf states		Oman Heart Association (2012) [139]	

ACCF, American College of Cardiology Foundation; ACCP, American College of Chest Physicians; ACS, acute coronary syndromes; AHA, American Heart Association; AMM, Academy of Medicine; ARC, Australian Resuscitation Council; CMA CSC, Chinese Medical Association Chinese Society of Cardiology; CSANZ, Cardiac Society of Australia and New Zealand; CVD, cardiovascular disease; ESC, European Society of Cardiology; JCS, Japan Circulation Society; MOH, Ministry of Health; NHFA, National Heart Foundation; NSTEMI, non-ST-segment elevation ACS; NZRC, New Zealand Resuscitation Council; PHA, Philippine Heart Association; STEMI, ST-elevation myocardial infarction; TSOC, Taiwan Society of Cardiology; UA, unstable angina.