

Anticipation and Management of Coronary Heart Disease for Hajj Pilgrims

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ABSTRACT

Background: The increasing number of Indonesian pilgrims yearly makes Indonesia the most significant country that sends pilgrims worldwide. But unfortunately, this is not accompanied by optimal health quality. One of the reasons is that most of these pilgrims are elderly and sometimes have suffered from degenerative diseases since they were in Indonesia.

Contents: Coronary heart disease is the leading cause of death in developed and developing countries. The pathophysiology of coronary heart disease is closely related to lifestyle and a combination of risk factors such as hypertension, dyslipidemia, smoking, diabetes mellitus, age and family history.

Conclusion: Early intervention on coronary heart disease's causes and precipitating factors can reduce morbidity and mortality, especially for pilgrims. For this reason, it is necessary to carry out good, and continuous collaboration between health workers and the pilgrims not only during the implementation of the pilgrimage in the holy land but has started when the pilgrims register as prospective pilgrims.

Keywords: Coronary heart disease, hajj management



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INTRODUCTION

The high interest of the Muslim community in Indonesia to perform the pilgrimage can be seen from the increasingly long queues of prospective pilgrims in almost every province. This phenomenon makes Indonesia the country with the most significant number of pilgrims globally. But unfortunately, this large number is not accompanied by the optimal health quality of the pilgrims themselves. One of the reasons is that most of these pilgrims are elderly and sometimes have been sick since they were in the country.

As we all understand, the pilgrimage requires optimal stamina and conditions; this is in line with the conditions for Hajj, namely *istito'ah*, which means physically capable.¹ This condition is necessary not only during the process of performing the pilgrimage itself but sometimes also conditions in other places. The field requires the congregation to walk for kilometres, for example, for those who get a hut far from the Grand Mosque, not to mention facing quite extreme weather conditions. This situation causes an increase in the physical and mental condition of the congregation, which indirectly increases the morbidity and mortality rates. Of course, there have been systematic and continuous efforts from the government, in this case, the ministry of health, to solve this problem, but on the other hand, regulations that tend to be less stringent from the government make the efforts made not optimal. One of the vital weaknesses of this regulation is that there is no age restriction and screening in the field tends to be inadequate and consistent.

Coronary Heart Disease (CHD) is the most common cardiovascular disease condition. Coronary heart disease is a general term used for all disorders involving obstruction of blood through the coronary arteries. This disease is also known as coronary artery disease (CAD). The process of atherosclerosis generally causes coronary heart disease. Where atherosclerosis is a process in which there is a thickening and hardening of a large or medium artery, such as the coronary, basilar, aortic, and iliac arteries, where lesions in these arteries result in impaired blood flow to primary tissues and organs such as the brain, heart and kidney which is manifested as coronary heart disease, stroke and peripheral artery disease.²

Ischemic heart disease (IHD) is an imbalance between oxygen supply and demand in the myocardium, which causes myocardial hypoxia and accumulation of metabolic waste caused by atherosclerotic disease in the myocardium. Coronary arteries. Angina pectoris is still the most common manifestation of ischemic heart disease, which means "a choking feeling in the chest". Although other conditions can cause similar discomfort, angina pectoris refers explicitly to an uncomfortable sensation in the chest and surrounding structures that

results from an imbalance between myocardial oxygen supply and demand.²

Stable ischemic heart disease (SIHD) is defined as angina symptoms that can be managed and do not progress progressively. In addition, there was also no history of previous infarction or procedural interventions such as stent placement (Percutaneous Coronary Intervention, PCI), coronary bypass surgery (Coronary Artery Bypass Graft, CABG) or significant signs of ongoing cardiac necrosis. SIHD is distinct from acute coronary syndrome (ACS), which includes unstable angina, ST-elevation myocardial infarction, and non-ST-elevation myocardial infarction. ACS is characterized by the presence of myocardial infarction, i.e. areas of myocardial necrosis caused by the prolonged cessation of blood supply; It most commonly results from an acute thrombus at the site of coronary atherosclerotic stenosis. This event may be the first clinical manifestation of ischemic heart disease, or there may be a history of angina pectoris before.²

Although ACS manifests the same general disease process as SIHD, risk stratification, diagnostic testing, and medical and procedural management usually differ significantly between the two conditions. In some circumstances, patients with low-risk unstable angina may be managed similarly to patients with SIHD. This article aims to summarize efforts to identify risk factors and manage all spectrums of coronary heart disease for pilgrims.

STABLE ISCHEMIC HEART DISEASE

Stable ischemic heart disease or chronic stable angina manifests as a predictable pattern of transient chest discomfort during activity or emotional stress. It is usually caused by an obstructive atheromatous plaque fixed in one or more coronary arteries. The pattern of symptoms is usually related to the degree of stenosis. Briefly, atherosclerotic stenosis narrows the luminal diameter of the coronary arteries by more than about 70%, followed by the reduction in flow capacity may be sufficient to meet the low oxygen demand of the heart at rest but not sufficient to compensate for the oxygen demands of strenuous activity. During physical activity, activation of the sympathetic nervous system results in increased heart rate, blood pressure, and contractility, increasing myocardial oxygen consumption. When oxygen demand exceeds available supply, myocardial ischemia develops, often accompanied by the chest discomfort of angina pectoris. Ischemia and symptoms persist until the increased need is addressed and oxygen balance is restored.²

Risk Factor Assessment

Hypertension and Obesity

Accurate blood pressure measurement requires that the patient rest for 5 minutes, and

when the blood pressure is measured, both feet are on the floor, legs not crossed, back supported, and arms kept at heart level. Bodyweight should be measured by calculating the body mass index (BMI). Obesity is most often determined by a BMI over 30 kg/m².²

Dyslipidemia

Several physical findings have been associated with dyslipidemia. Skin xanthomas (and xanthelasma of the eyelids) are localized collections of lipid deposits within the skin, often associated with an underlying lipid disorder. Corneal arcus is a deposition lipid-rich material deposition in the peripheral cornea, which can be directly visualized without a slit-lamp examination.²

Diabetes Mellitus

Acanthosis nigricans is a pigmented hyperkeratosis of the skin that usually occurs on the surface of the neck and flexors. Skin tags, also called acrochordons, are benign pedunculated growths common on the neck, armpits, and groin and are associated with diabetes and metabolic disorders..²

Tobacco Abuse and Chronic Obstructive Pulmonary Disease

Continued tobacco abuse increases the risk of recurrent cardiovascular events. The patients sometimes try to hide this use of tobacco cigarettes. Therefore, there are findings showing tobacco use can be used as a basis for providing education on the importance of quitting smoking to reduce the risk of cardiovascular events.²

Nicotine stains on teeth, fingers or nails, tobacco odour, or premature skin wrinkling may indicate previous tobacco abuse. In addition, chronic obstructive pulmonary disease (COPD) has been reported to be a risk factor for cardiovascular death, regardless of tobacco abuse. Examination findings of prolonged expiration, wheezing, and distant breath sounds may suggest COPD as a complication..²

Diagnostic Evaluation

Biochemistry Test

In patients with SIHD, metabolic abnormalities that are risk factors for CAD are frequently detected. These disorders include dyslipidemia and insulin resistance. In addition, chronic kidney disease is strongly associated with the risk of atherosclerotic vascular disease. All patients with a definite diagnosis or suspicion of CAD should have total cholesterol, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, triglycerides, serum creatinine checked (leading to estimated glomerular filtration rate [eGFR]), fasting blood glucose levels, and measurement of haemoglobin (Hb) A1c.^{2,3,4}

Resting Electrocardiography

Normal findings on a resting ECG are found in about half of patients with SIHD, and even patients with severe CAD may have normal ECG results at rest. The most common abnormality on the ECG in patients with SIHD is nonspecific ST-T wave changes with or without abnormal Q waves.^{2,3,4}

Resting Echocardiography

Assessment of global LV function is one of the most valuable aspects of echocardiography. Identifying regional wall motion abnormalities may suggest CAD, whereas other findings such as valvular stenosis or pulmonary hypertension may point to an alternative diagnosis..^{2,3,4}

Chest Radiography

Chest X-rays are generally within normal limits in patients with SIHD, especially if they have normal findings on the resting ECG and do not have MI..^{2,3,4}

Stress testing

Non-invasive stress tests can often provide helpful information for establishing the diagnosis and predicting the prognosis in patients with suspected stable angina.^{2,3,4}

Computerized Tomography

Cardiac CT has made substantial progress as a non-invasive approach to imaging atherosclerosis and its consequences. In addition to being a susceptible method for detecting coronary calcifications, cardiac CT scans also provide coronary artery angiography and quantification of ventricular function..^{2,3,4}

Coronary Magnetic Resonance Imaging (CMR)

CMR can visualize arteries in three dimensions and differentiate various tissues. CMR has attracted the interest of researchers as a method for assessing the character of arterial atheroma and assessing susceptibility to plaque rupture.^{2,3,4}

Penilaian Invasif dengan Arterografi Koroner

Currently, coronary arteriography is still the appropriate standard for assessing coronary artery anatomy and the severity of CAD.^{2,3,4}

Medical Management

Comprehensive management of SIHD has five aspects as indicated in Figure 1: (1) identification and treatment of associated diseases that can trigger or worsen angina and ischemia; (2) reduction of coronary risk factors; (3) application of pharmacological and non-pharmacological interventions for secondary prevention; (4) pharmacological management of angina; and (5) revascularization with PCI or CABG, if indicated. These five approaches

should be considered, often together, in each patient.²

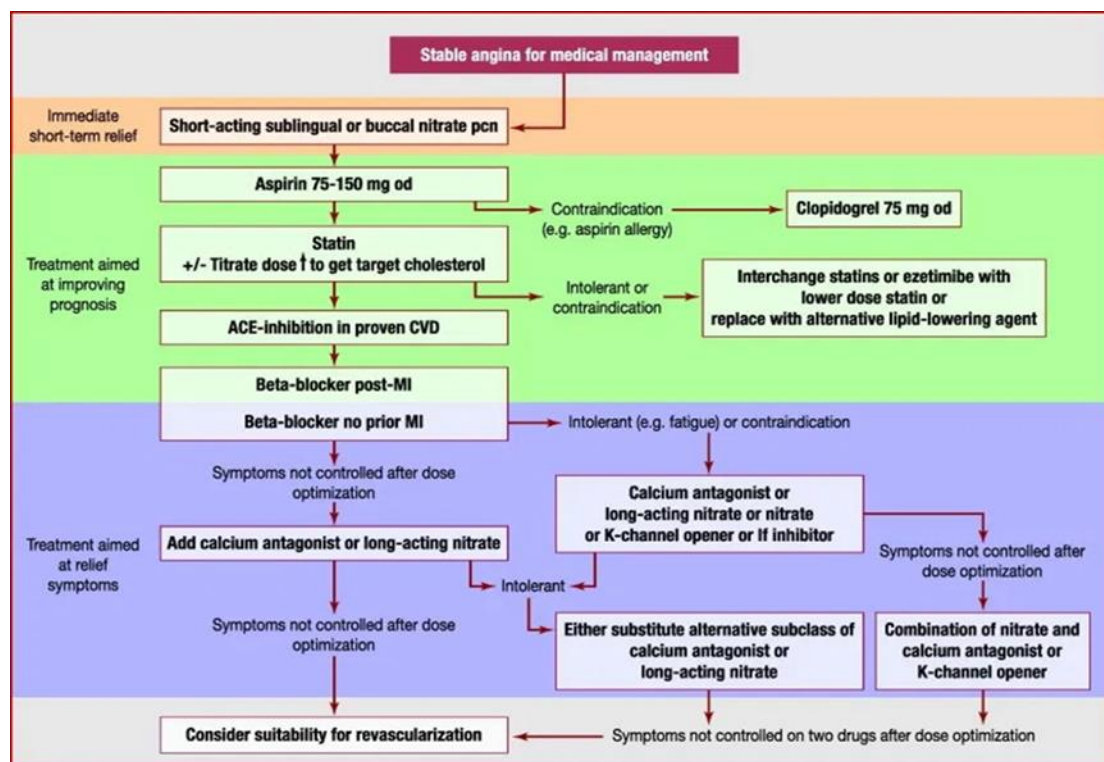


Figure 1. Medical Management of Stable Angina Pectoris.²

Treatment of the Related Disease

Several common medical conditions that increase myocardial O₂ demand or reduce O₂ supply can cause new angina pectoris or exacerbations of previously stable angina. These conditions include anaemia, latent thyrotoxicosis, fever, infection, and tachycardia.^{2,3,4}

Controlling the Coronary Risk Factor

Several controlling strategy for the coronary risk factor, i.e. hypertension control, smoking cessation, management of dyslipidemia, regular exercise, and weight loss for obese patients.^{2,3,4}

Pharmacotherapy for Secondary Prevention

Aspirin, low-dose anticoagulants, ACE inhibitors, beta-blockers, antioxidants and vitamins are beneficial for reducing the incidence of MACE in men and women with previous MI or stroke and post-CABG surgery. Counselling and Lifestyle Changes are also essential elements of the overall management of each patient.^{2,3,4}

Pharmacology Treatment of Angina

Pharmacological prevention of angina symptoms during periods of activity classically involves using drugs that reduce myocardial oxygen demand or increase myocardial oxygen

supply in response to activity. Traditional anti-ischemic therapy includes three antianginal agents: nitrates, -blockers, and calcium channel blockers (CCBs). Currently, there are new antianginal drugs with entirely different mechanisms such as trimetazidine, ivabradine or partially such as nicorandil.^{2,3,4}

Pendekatan Revaskularisasi pada Penyakit Jantung Iskemik Stabil

Each of the following considerations can be used to guide decisions regarding indications for revascularization: (1) onset of symptoms and severity of symptoms; (2) the physiologic significance of coronary lesions and other anatomic considerations; (3) the extent of myocardial ischemia and the presence of left ventricular dysfunction; and (4) other medical conditions that predispose to risk associated with percutaneous or surgical revascularization as well as conditions following revascularization.^{2,3,4}

ACUTE CORONARY SYNDROME

Acute coronary syndrome (ACS) is a life-threatening condition that can occur at any time in patients with coronary artery disease. The syndrome forms a continuum from unstable angina pectoris to progress to a large acute myocardial infarction (MI), a condition of persistent necrosis of the heart muscle. A clinical diagnosis requires a condition suggestive of myocardial ischemia with some combination of myocardial necrosis detected by biochemical, electrocardiographic, or imaging modalities. A contemporary approach to treating patients with new-onset chest pain or worsening ischemic symptoms is to categorize them as an acute coronary syndrome (ACS), which includes a diagnosis of unstable angina (UAP), non-ST elevation MI (NSTEMI), and ST-segment elevation MI (STEMI). Despite advances in diagnosis and management, STEMI remains a significant public health problem in the industrialized world and is increasing in developing countries.^{2,5}

Managemen

Successful management of ACS requires prompt initiation of therapy to limit myocardial damage and minimize complications as indicated in Figure 2. Therapy should be aimed at treating the intracoronary thrombus that triggers acute coronary syndrome and addressing the ischemic problem by administering anti-ischemic therapy to restore the balance between myocardial oxygen supply and demand. Although certain therapeutic aspects are common to all ACS, there are essential differences in patients with ST-segment elevation (STEMI) compared with patients without ST-segment elevation (UA and NSTEMI). Patients with STEMI usually have complete occlusion of the coronary arteries and therefore require rapid optimal reperfusion therapy (mechanical or pharmacological), whereas patients without ST elevation generally do not.^{2,5}

Standard hospital procedures for any patient with ACS include close observation in the intensive care unit, where continuous ECG or arrhythmia monitoring is performed. The patient is initially treated in bed to minimize myocardial oxygen demand, and if hypoxaemia develops, additional oxygen may be provided (by mask or cannula) to increase oxygen supply. Analgesics, such as morphine, may be given to reduce chest pain and associated anxiety.^{2,5}

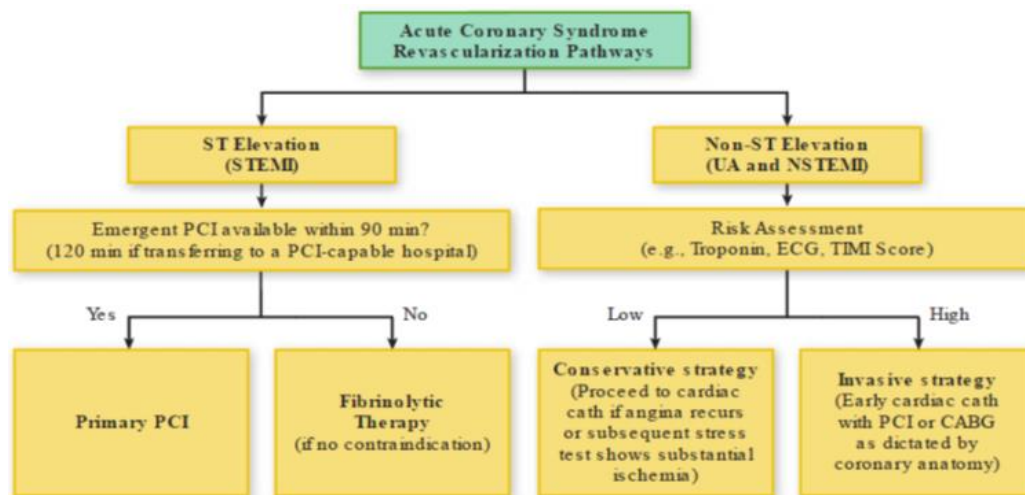


Figure 2. Flowchart for ACS Management.²

Acute Treatment of Unstable Angina and Non-ST-Elevation Myocardial Infarction

The main focus of treatment for UA and NSTEMI consists of an anti-ischemic treatment to restore the balance between myocardial oxygen supply and demand and antithrombotic therapy to prevent further thrombotic processes and facilitate resolution of the thrombus that nearly occludes the coronary artery.^{2,5}

Anti-ischemic Treatment

The same pharmacological agents used to decrease myocardial oxygen demand in chronic stable angina are also appropriate for UA and NSTEMI but are often administered more aggressively. Beta-blockers decrease sympathetic impulses to the myocardium, thereby reducing oxygen demand and contributing to the heart's electrical stability. Nitrates help relieve angina through vasodilation, decreasing myocardial oxygen demand by reducing venous return to the heart (reducing preload and ventricular wall pressure). Nitrates can also increase coronary flow and prevent vasospasm through coronary vasodilation. In UA or NSTEMI, the sublingual route often gives nitroglycerin initially, followed by continuous intravenous infusion.^{2,5}

Antithrombotic Therapy

The goal of antithrombotic therapy, including antiplatelet drugs and anticoagulants, is to prevent further development of partially occlusive intracoronary thrombi while at the same time dissolving them by endogenous mechanisms. Aspirin inhibits the synthesis of thromboxane A₂, a potential mediator of platelet activation. It should be given promptly at initial presentation and continued indefinitely in patients without contraindications (e.g., allergy or underlying bleeding disorder). ADP is another necessary agonist which partially activates platelets by binding to the platelet P₂Y₁₂ receptor. This receptor's antagonist inhibiting platelet activation includes clopidogrel, prasugrel, and ticagrelor. There are also more vital antiplatelet agents used in ACS in some circumstances. Glycoprotein receptor (GP) IIb/IIIa antagonists (abciximab, eptifibatide and tirofiban) are potent antiplatelet agents that block the final pathway of platelet aggregation.^{2,5}

Anticoagulant Drug

Intravenous unfractionated heparin (UFH) has long been the standard anticoagulant therapy in UA and NSTEMI. UFH also inhibits coagulation factor Xa, slows thrombin formation and further inhibits clot development. LMWH interacts with antithrombin but preferentially inhibits coagulation factor Xa. Fondaparinux is a subcutaneously administered agent that is a particular factor Xa inhibitor.^{2,5} The resume of pharmacology agents in ACS is shown in Figure 3.

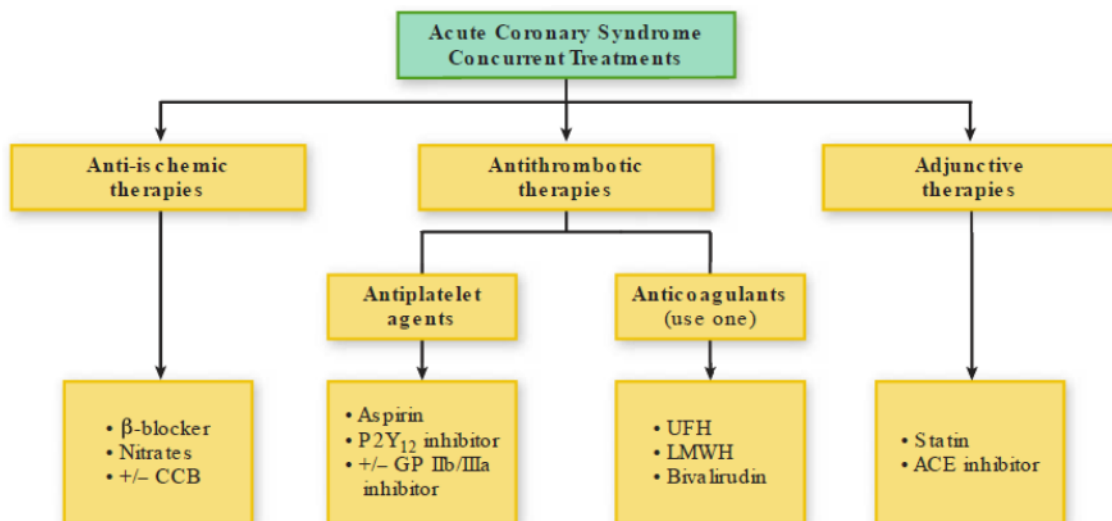


Figure 3. Pharmacology Agents in ACS.²

Acute Treatment of ST-Elevation Myocardial Infarction

In contrast to UA and NSTEMI, in STEMI, there is a total blockage of the coronary

arteries. Thus, to limit myocardial damage, the main focus of acute treatment is achieving rapid reperfusion of the threatened myocardium, using percutaneous coronary mechanical revascularization or fibrinolytic drugs. This approach reduces the extent of myocardial necrosis and dramatically improves survival. Effectively, this procedure should be done as quickly as possible; The sooner intervention is initiated, the greater the myocardium that can be saved. Decisions about therapy must be made within minutes of the patient's assessment, based on history and electrocardiographic findings, often before serum markers of necrosis will be elevated. In addition, as in the case of UA and NSTEMI, specific treatment should be initiated immediately to prevent further thrombosis and restore the balance between myocardial oxygen supply and demand. For example, antiplatelet therapy with aspirin can reduce mortality and re-infarction rates after STEMI. It should be given immediately at presentation (by chewing the tablet to facilitate absorption) and continued orally every day after that. Anticoagulants (e.g., intravenous UFH) are usually initiated to help maintain coronary vessel patency and are an essential adjunct to PCI and fibrinolytic regimens. Beta-blockers reduce myocardial oxygen demand and reduce the risk of recurrent ischemia, arrhythmias, and re-infarction. If there are no contraindications (e.g., asthma, hypotension, or significant bradycardia), oral beta-blockers should be given to achieve a heart rate of 50 to 60 beats/min. Intravenous beta-blocker therapy should be provided if the patient presents with elevated blood pressure, as this route of administration has been associated with an increased risk of cardiogenic shock in STEMI. Nitrate therapy, usually intravenous nitroglycerin, is used to help control ischemic pain and functions as a helpful vasodilator in patients with heart failure or severe hypertension.^{2,5}

Primary Percutaneous Coronary Intervetion

The method of reperfusion therapy of choice for patients with acute STEMI is immediate cardiac catheterization and percutaneous coronary intervention in the causative lesion. This approach, called primary PCI, is a very effective method of restoring coronary perfusion. During the procedure, performed under fluoroscopy, a catheter is inserted into a peripheral artery and directed to the site of coronary occlusion. The balloon at the tip of the catheter is then inflated, compressing the thrombus and atherosclerotic plaque, and a stent is usually inserted, thereby restoring and maintaining coronary blood flow.^{2,5}

Fibrinolytic Therapy

Primary PCI is the preferred reperfusion approach in acute STEMI, as it leads to more remarkable survival with lower rates of re-infarction and bleeding compared to fibrinolytic therapy. However, if PCI is unavailable or is likely to be delayed, fibrinolytic therapy is

alternative reperfusion. Fibrinolytic drugs accelerate the lysis of intracoronary occlusive thrombi in STEMI, restoring blood flow and limiting myocardial damage. Fibrinolytic agents currently in use include recombinant tissue-type plasminogen activator (alteplase, tPA), reteplase (rPA), and tenecteplase (TNK-tPA). Each drug functions by stimulating the natural fibrinolytic system, converting the inactive precursor plasminogen to the active protease plasmin, which lyses fibrin clots. Because the primary risk of thrombolysis is bleeding, contraindications to such therapy include conditions in which a necessary circulating fibrin clot may be compromised (e.g., patients with active peptic ulcer disease or an underlying bleeding disorder, patients who have recently had a stroke, or patients who are recovering). From recent surgery).^{2,5}

CORONARY HEART DISEASE SCREENING IN PROSPECTIVE HAJJ CONTRIBUTORS

First Step of Health Assessment

The first stage of the health assessment is an essential examination of the hajj pilgrims, which can be carried out at the community health centre or clinic that has been designated as a health service facility for the hajj pilgrims. The first stage of health examination will produce results which will then be categorized according to the level of health risk, namely high health risk (risky) or low health risk (non-risky).⁶

At this stage, health workers at health centres and clinics can detect cardiovascular disorders, especially coronary heart disease in prospective pilgrims through history taking, physical examination and available supporting examinations, namely electrocardiography (ECG).⁶

Anamnesis

In this history, cardiovascular risk factors such as age, gender, past medical histories such as hypertension, diabetes, dyslipidemia and smoking can be identified. If the congregation is classified as an older adult and suffers from one of the diseases above, this prospective congregation should be suspected of suffering from coronary heart disease. This suspicion can increase if there are complaints related to cardiovascular, especially chest pain. Another complaint is shortness of breath during activity, long and frequent palpitations, and a history of previous fainting.⁶

Physical Examination

A physical examination can be done by checking vital signs first, especially blood pressure. If the blood pressure exceeds the standard limit, which is 140/90 mmHg, this prospective congregation should be suspected of suffering from hypertension. Next, the

height, weight and abdominal circumference can be measured. This examination can detect other risk factors such as obesity. A person is considered obese if the Body Mass Index (BMI) is $> 25 \text{ kg/m}^2$. Further physical examination was carried out as a general physical examination from head to toe. Sometimes, the physical examination may be regular in certain patients with ischemic heart disease.⁶

Additional Measurement

Suppose there are abnormalities on the ECG recording such as rhythm abnormalities such as atrial fibrillation, abnormalities in the ST segment and T waves that indicate an ischemic condition or infarction and the presence of ventricular hypertrophy. The existence of these findings will further strengthen the suspicion of cardiovascular disorders.⁶

Diagnosis and Health Risk Consideration

Suppose the history and physical and supporting examinations point to coronary heart disease. In that case, the prospective pilgrim can be diagnosed with coronary heart disease, in this case, ischemic heart disease and categorized as a high-risk pilgrim candidate.⁶

This high-risk category is under the Technical Instructions of the Minister of Health number 15 of 2016, namely: having health risk factors that can cause the inability to carry out the pillars and obligatory Hajj and threaten the safety of the pilgrims. Furthermore, the pilgrims are referred to a higher health centre such as a city or district hospital to undergo a second stage of health examination.⁶

Second Step of Health Assessment

The second stage of a health examination is an examination that must be followed by all prospective pilgrims at least 6 months before departure. Pilgrims who have attended the first stage of examination while waiting for the second stage of examination are required to undergo health coaching during the waiting period and maintain health conditions and receive integrated health guidance before the determination of istitaah status.⁶

The second examination stage is carried out by a team of specialist doctors at the city/district hospital who the health care team has appointed at the city/district level. At this stage, the criteria for istitaah will be determined for each prospective pilgrim.⁶

In particular, prospective pilgrims suspected of suffering from ischemic heart disease will be directed to the heart and blood vessel polyclinic to undergo a comprehensive examination by the relevant specialist. The examination stages are no different from the first stage examination, including anamnesis, physical examination and supporting examinations. At this stage, the specialist confirms the findings or previous data related to the cardiovascular condition of the prospective congregation.

Anamnesis

Evaluation of complaints, especially chest pain, needed to ischemic chest pain or not, with a more in-depth and directed history to rule out non-ischemic causes of chest pain. In addition, it was also investigated whether there were other complaints related to other cardiovascular diseases such as heart failure and arrhythmias. The history also explores cardiovascular risk factors that support ischemic heart disease and determines the supporting examinations that must be carried out.

Physical Examination

Physical examination at this stage is the same as in the first examination but is more focused on physical examination of the heart and peripheral blood vessels, such as xanthelasma of the eyelids associated with dyslipidemia; changes in arterial pulsation indicating circulatory abnormalities such as *pulsus parvus et tardus*, water hammer pulse etc.; increase in jugular venous pressure; abnormalities on cardiac examination: such as the presence of irregular or additional heart sounds and the presence of murmurs and abnormalities on pulmonary examination: such as additional sounds such as rhales or crepitations; abnormalities on abdominal examination such as hepatomegaly and ascites; oedema of the legs or feet.

Additional Measurement

At this stage, the supporting examinations that can be carried out are adjusted to the facilities available at the referral hospital. The standard is a complete laboratory examination to detect risk factors such as DM, dyslipidemia, and other chronic diseases. Another examination is a chest X-ray to detect abnormalities in the heart and lungs. The next check that can be done is a treadmill test. This examination is performed to confirm the suspicion of ischemic heart disease. Suppose from the above examination results there is a strong suspicion of ischemic heart disease. In that case, if there are more complete facilities, it can be continued with a coronary CT scan and coronary angiography.

Diagnosis and Recommendations

After it is proven that the prospective pilgrim suffers from ischemic heart disease based on the history, physical examination and support, the following action is to recommend pharmacological and non-pharmacological therapy. Giving this therapy is the treatment of comorbidities such as hypertension, diabetes, dyslipidemia with related drugs. Another therapy is drugs for secondary prevention of cardiovascular complications such as acute coronary syndromes and stroke, namely salicylic acid and statins. Therapy that is no less important is anti-ischemic drugs to reduce the symptoms of angina pectoris, such as nitrates,

beta-blockers and calcium channel blockers. Non-pharmacological therapy can be given in the form of recommendations for healthy lifestyles such as quitting smoking, avoiding food patterns that tend to be high in carbohydrates and fats, losing weight, and exercising regularly at least 3 times a week.⁶

Determination of the Health Istitaah of the Hajj Pilgrims

Based on the established diagnosis and taking into account the severity of the illness and the estimated prognosis at the time of the pilgrimage, the determination of istitaah can be enforced with the following criteria:

1. Meet the requirements of Hajj health istitaah
Valid for prospective pilgrims who can be independent and suffer from mild ischemic heart disease and can be controlled by the therapy given
2. Meet the requirements of Hajj health istitaah with assistance
Valid for prospective pilgrims who require minimal assistance from others and suffer from mild ischemic heart disease and can be controlled by the therapy given
3. Does not meet the requirements for temporary Hajj health
Valid for prospective pilgrims who suffer from severe ischemic heart disease but can still perform revascularization measures such as coronary stent placement (Percutaneous Coronary Intervention, PCI or heart bypass surgery (Coroner artery Bypass Graft, CABG).
4. Does not meet the requirements for Hajj health
Applies to prospective pilgrims who suffer from severe ischemic heart disease that does not improve with revascularization measures or are accompanied by other complications such as heart failure, kidney failure, stroke, peripheral arterial disease, so this pilgrimage is an absolute contraindication.

Third Step of Health Assessment

This stage of health assessment is carried out when prospective pilgrims are at embarkation. This assessment is carried out by an aviation health doctor appointed at each embarkation. The evaluation results are based on the current condition of the prospective pilgrims based on the recorded diagnoses. The results of the recommendations are in the form of airworthy or not airworthy. The prospective pilgrim is declared unfit to fly, especially for prospective pilgrims with ischemic heart disease who experience an acute attack episode such as acute coronary syndrome or stroke for less than 3 months.⁶

Evaluation of Pilgrims While in the Holy Land

Pilgrims who have been detected as suffering from coronary heart disease since embarkation has worn unique attributes such as bracelets which indicate that the congregation is included in the category of high risk (risti) pilgrims. In addition, it must be ensured to carry all medicines from the time of entry at embarkation, which these medicines must be sufficient for the duration of the pilgrimage from the time of departure until returning to the homeland. This policy is to prevent complications of coronary heart disease due to the depleted supply of medicines. These pilgrims must also be closely monitored by the crew of staff, especially health workers, while in the lodge and when carrying out the Umrah and Hajj processions. During the waiting period for the Hajj rituals, the congregation is trying to carry out routine worship rituals at the lodge. Unnecessary things, such as visits to historical places or markets, are strictly avoided.⁶

Other active crew members assist the group health workers in making regular visits to this risti congregation. If deemed necessary, can consult a specialist in the sector if chest pain symptoms do not decrease with rest or with the use of sub-lingual anti-ischemic drugs, or there are other complications such as infection etc. Health workers must also pay attention if pilgrims are not at high risk who complain of chest pain that leads to ischemic heart disease. This patient needs to take a history and physical examination and consult a cardiologist at the Indonesian Hajj Medicine Center (IHMC) for further examination.⁶

Suppose there is an emergency for the Risti pilgrims or other pilgrims, such as acute coronary syndrome ST-elevation myocardial infarction (ST-elevation Myocardial Infarction, STEMI) or requiring immediate revascularization or with impaired hemodynamics. In that case, referral to a Saudi Arabian hospital in coordination with specialist doctors is necessary—the heart of the BPHI and the Southeast Asian muasasah maktab officer. Before referral, initial therapy should be given, such as aspirin 2 tablets, clopidogrel 4 tablets and ISDN 5 mg sublingual. If you do not require immediate revascularization and are hemodynamically stable, you can be treated at the High Care Unit (HCU) at IHMC. The group device must be active to visit the Mecca IHMC or Saudi Arabian Hospital if congregants are cared for.⁶

At the hajj procession, all pilgrims need to be re-evaluated in collaboration with specialist doctors in the related sector and the Mecca IHMC to assess whether their health condition is appropriate to follow all hajj rituals with the group. Suppose the congregation's assessment is not feasible. In that case, the congregation can be referred to a Saudi Arabian hospital for further treatment or included in the wukuf safari team with the assistance of

health workers from the Mecca IHMC. If deemed worthy, the congregation can be included with the group with strict supervision from all group equipment, where the congregation is not allowed to do a lot of activities and specifically for rituals that require physical activities such as throwing the jumrah must be represented by other pilgrims.⁶

When performing the pilgrimage from Arafah to Mina, the congregation was tried to be in one tent with a group of equipment. If there is an emergency, the group's health officers must provide emergency assistance on the spot and contact the field Hajj officers in Arafah, Muzdalifah and Mina for referrals to emergency IHMC in Arafah and Mina or be referred directly to the nearest Saudi Arabian hospital in collaboration with Southeast Asian muasasah maktab officer. Furthermore, the sick congregation at the emergency BPHI will be referred to the Mecca IHMC.

The post-hajj ritual period is when there are many sudden deaths in boarding houses and places of worship, based on data from the Health Center of the Indonesian Ministry of Health. For this reason, the Risti congregation, especially those with ischemic heart disease, is sought to be sent home early or early tanazul with other groups without having to perform the sunnah arbain worship in Medina. While waiting for the return schedule of Risti's pilgrims, strict supervision is still being carried out, and efforts are made to rest more at the lodge. For pilgrims who are forced to be treated in a Saudi Arabian hospital when the group has to move to Medina or return to their homeland, the congregation will later be included in the list of late returning pilgrims or final tanazul.⁶

Conclusion

The series of pilgrimages from beginning to end requires optimal health stamina, so careful preparation is needed when in the homeland and the holy land. This preparation requires good cooperation between prospective pilgrims and health workers. Pilgrims with cardiovascular risk factors need a comprehensive evaluation to diagnose coronary heart disease. Congregants with non-istitah evaluations are recommended to postpone the pilgrimage and those obliged to maintain their condition while in their homeland and while in the holy land.

The health workers of the group are obliged to carry out inherent supervision of these Risti pilgrims to prevent morbidity and mortality while in the lodge or during the Hajj procession. For this reason, it is necessary to carry out excellent and harmonious cooperation between fellow group officers health workers on duty in the sector and at IHMC and Southeast Asian muasasah maktab officers. To reduce the possibility of an emergency, the

Risti congregation can be included in programs held by IHMC, such as the Wukuf Safari and Tanazul Awal, so that it is hoped that all Risti pilgrims can maintain their health condition while in the holy land.

Conflict of Interest

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