Cost-effectiveness Analysis of Primary Percutaneous Coronary Intervention and Streptokinase Therapy for Acute ST-Elevation Myocardial Infarction Patient

ABSTRACT

BACKGROUND – Reperfusion therapy in ST-elevation myocardial infarction (STEMI) can be obtained by primary percutaneous coronary intervention (primary PCI) or by streptokinase therapy. Based on ACCF/AHA Guideline, primary PCI is considered superior to streptokinase for patients who are admitted to hospitals with angioplasty facilities. Many trials have done to compare effectiveness of primary PCI with streptokinase therapy for acute STEMI. The effectiveness is identified in clinical outcome MACE (Major Adverse Coronary Events), such death, reinfarction and stroke. It results that primary PCI is more effective than streptokinase therapy for treatment of STEMI. But primary PCI is more expensive than streptokinase therapy. Cost Effectiveness Analysis (CEA) is one of methods in pharmacoeconomic study which compare cost and outcome of several therapy to make clinical decisions.

OBJECTIVE – To analyze cost-effectiveness of percutaneous coronary intervention and streptokinase therapy for ST-elevation myocardial infarction patients.

METHOD – Methods in this study was descriptive, observational and retrospective. Patients in primary PCI and streptokinase therapy were followed since their admission and 3 months after their discharge. Riil cost was patients cost after their hospitalization defined on billing. The clinical outcome measured with no MACE (rehospitalization, reinfarction and death) evidence in primary PCI patients and streptokinase therapy patients. The analysis was performed by calculating the Average Cost Effectiveness Ratio (ACER) and the Incremental Cost Effectiveness Ratio (ICER), then described on cost effectiveness plane with comparator therapy was primary PCI .

RESULTS AND CONCLUSIONS – Average riil cost in 15 primary PCI patients was Rp 49.982.404 ± 14.760.514 and average riil cost in 11 streptokinase patients was Rp 11.715.069 ± 3.712.081. Effectiveness of primary PCI patient 80,0 % and 63,6% in streptokinase therapy patients. Average Cost Effectiveness Ratio (ACER) of primary PCI Rp 62.478.005 and ACER of streptokinase Rp 18.419.920. Incremental Cost Effectiveness Ratio (ICER) was Rp 233.337.408,54. On cost-effectiveness plane, streptokinase was on Quadran III (Trade-off) which was less costly and less effective. Streptokinase therapy had a low effectiveness but the cost is cheaper than primary PCI, which could be used as an alternative therapy in patients with acute STEMI when there were limited financial resources.

KEYWORDS : Cost-effectiveness analysis, ST-elevation Myocardial Infarction, Reperfusion Therapy, Primary Percutaneous Coronary Intervention, Streptokinase therapy