Modern Approach in the Treatment of Myocardial Infarction in the Elderly

Abstract

Acute myocardial infarction is one of the most socially important diseases with a high rate of mortality and invalidisation. Elderly and old patients are in a risk group of morbidity and complications. But in patients of this group of age atypical forms of myocardial infarction are common. It usually makes diagnostics more difficult, because patients need a prolonged monitoring with using an additional examinations and dynamic observation. Modern scientific literature, that illuminating issues of application of pharmacological and endovascular treatment of acute myocardial infarction in with elderly and old age patients contains fragmented and, in some cases, contradictory data. The authors have taken an attempt to systemize all modern information in this field based on major studies and meta-analyses.

Keywords: Myocardial infarction; Acute coronary syndrome; Unstable angina; Percutaneous coronary intervention; Aged

Introduction

According to statistic, every year in Russian Federation about one million people die from cardio-vascular disease [1]. It’s known, that ischemic heart disease plays the main role and causes 85% of death among all cardio-vascular diseases in elderly and old group of patients. Elderly age of patients with acute myocardial infarction (AMI) is associated with higher rate of mortality during hospitalization and in a long-term period [2]. Today enlargement trend in number of elderly and old patients with ischemic heart disease is noticed. It puts a priority the prevention of age-related diseases and health conditions of the elderly population [3].

During involution, a number of changes in human organism are taking place. Adaptation reserves going less: a response on pathogenic factors goes down, immune system decreases, a frequency of addition pathology and its condition increases, metabolism of drugs changes [4]. Unstable angina and AMI in elderly and old patients often goes atypically and characterizes several features. Higher atherosclerosis degree and longer ischemic heart disease are widely existed in elderly patients, which accompanied with collateral vessels formation [5].

Due to collateral vessels, acute occlusion of one artery doesn’t cause a cardiogenic shock while in young people acute occlusion often causes a large ischemic zone, acute myocardial dysfunction, acute cardiac insufficiency and cardiogenic shock [6]. In this situation late reperfusion therapy may lead to aneurism and more over – may lead to broke of myocardial tissue due to reperfusion damage [7]. In elderly and old patients a frequency and duration of diabetes mellitus is also bigger [8]. With time’s passage it leads to micro- and macroangiopathy, which may become a reason of diffuse damage of coronary arteries and painless variant of AMI [9]. As a result – the fewer patients feel pain, the less they call emergency and get necessary help [2].

Methods

The main strategy in treating people with AMI is effective revascularization, using pharmacological method or interventional procedures. For the last 10 years percutaneous coronary interventions (PCI) and stenting of infarct-associated artery became the main standard methods in treating patients with AMI or unstable angina. Numerous of research tells us, that introducing of interventional methods significantly decreases the rate of mortality and increases quality of life parameters [10]. Elderly patients become candidates for revascularization in majority of cases [1]. In field of gerontology it’s interesting to determine, that there is much more good results of revascularizations among elderly patients, than among younger persons [2]. In TIME research study it was shown, that during revascularization the absolute risk of bleeding in elderly patients was paradoxically less, then in younger ones [11]. Moreover, the rate of mortality in the first 6 month after revascularization in elderly was much miner, then in patients under 70 years old, said in research Rana O. and co. [7.0% against 1.8% consequently] [12].

Together with technology development and increased accessibility in terms of modern medicine – the efficacy of treatment patients with AMI also grows. The results of meta-analyses De Luka L. and co. tell us, that during the last 10 years a number of PCI and frequency of medical prescription increased.

Results

During the period of treatment a rate of mortality in the first 30 days decreased from 14.6% [95% CI 9.9 – 20.4] to 9.5% [95%
Contrast-induced nephropathy is one of the most dangerous side-effect after PCI in patients with chronic kidney disease. In Kim JH trial was shown, that contrast-induced nephropathy significantly associated with high mortality rate during hospitalization [18.2% against 3.7% \( p=0.001 \)] [17]. It's also important, that the age of patients wasn't a factor of high risk of contrast-induced nephropathy. It means that it's need to be very careful when using high dosage of contrast during PCI (usually 3-4 ml per 1 kg of body weight) to prevent a toxic side effect on kidney [18].

References

of elderly patients with non-ST elevation myocardial infarction admitted in Italian cardiac care units. Open Heart 1(1): e000148-e000148.


