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Mini Review Article

Appropriate Use of Statins in The Elderly Population

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Abstract:

Dyslipidemia as a risk factor in the elderly and its influence on morbidity and mortality remains a topic, at least, controversial for this population range. Statins, due to their LDL-c reducing effect, can improve other conditions that contribute to the morbidity and mortality of elderly patients. These pleitropic effects are of vital importance in the anti-atherosclerotic effect of statins. Pleitropic properties may also be involved in the non-cardiovascular benefits of statins, recently described. The similarity of pathological processes between middle-aged individuals and elderly people over 65 years of age, together with epidemiological data, confer that high cholesterol levels lead to a high risk in the elderly. Angiographic studies show that, even with advanced circulatory disease, the elderly respond to cholesterol-reducing therapy, with reduced risk. Dyslipidemia plays a key role in the progression of coronary artery disease and is an important predictor of coronary artery disease related events in elderly individuals. Statins are widely accepted as effective therapy for secondary prevention of cardiovascular disease. Although studies are limited, such benefits should also be extended to elderly patients. Statins are widely accepted as effective therapy for secondary prevention of cardiovascular disease. Although studies are limited, such benefits should also be extended to elderly patients. Taking into account the spectacular growth of the population over 65 years of age, including the increased longevity and knowing that if the current conditions of eating error, physical inactivity and inadequate treatment are modified, statin therapy undoubtedly represents a highly positive influence on the survival of this population group described.

Key words: elderly patients; hypercholesterolemia; statins; clinical trials; coronary heart disease; atherosclerosis prevention

Abbreviations

CAD: coronary artery disease

LDL-c: Low Density Lipoprotein Cholesterol

Introduction

During recent years there have been many advances in the studies and treatments of heart diseases. The classic Studies of Multiple Risk Factors (MRFIT), the Helsinki study and the Framingham study have already shown a direct relationship between high total cholesterol and LDL-cholesterol (low-density lipoprotein cholesterol) in the development of coronary artery disease (CAD). Cardiovascular diseases are the number one cause of death in all western countries in the 2020s.

CAD is the leading cause of death of men and women in the elderly. A significant advance in the prevention and treatment of CAD is lipid-lowering therapy. The aim of this review is to analyze the effect of statins on the reduction of morbidity and mortality in elderly patients.

Elderly adults, defined as those aged 65 years or older, are the fastest growing population segment. The prevalence of cardiovascular disease (CVD) increases with age. Elevated LDL-c and Total Cholesterol are also independent risk factors for cardiovascular events in the elderly, even in those over 80 years of age.

The treatment of elderly people over the age of 85 years (the so-called old elderly) presents some controversy, since the classic risk factors do not have exactly the same strength in them as in middle-aged individuals. Paradoxically, in the elderly the very low cholesterol is associated with higher mortality. Diets, exercise and therapeutic intervention with the use of statins can increase the quality of life in elderly adults and prolong the

life time. The aggressive use of state-of-the-art statins has resulted in a decrease in morbidity and mortality rates in the first few months of use.

A large number of randomized studies have demonstrated the effectiveness in the use of statins to reduce cardiovascular events in primary prevention and, particularly, in secondary prevention. In daily practice, many elderly have been elected for lipid-lowering therapy because they present medium and high risk, according to existing guidelines, but are not being treated adequately, either by non-acceptance by the doctor or by the non-adherence of the patient, here should be highlighted the socioeconomic issues and adverse effects of the drug (myosites, changes in liver function).

Statins, due to their LDL-c reducing effect, can improve other conditions that contribute to the morbidity and mortality of elderly patients. These pleitropic effects are of vital importance in the anti-atherosclerotic effect of statins. Pleitropic properties may also be involved in the non-cardiovascular benefits of statins, recently described.

To better understand the complex phenomenon of increased survival and the fundamental importance of coronary disease, as the main morbidity and mortality factor for this population, we should recall traditional risk factors and among them dyslipidemia, as well as mentioning the new risk factors.

As traditional risk factors, we can mention lipid levels, smoking, hypertension, diabetes, obesity. In addition to these, there are genetic determinants, hemostatic factors, inflammatory markers, markers of chronic infection and metabolic parameters.

Dyslipidemia as a risk factor in the elderly and its influence on morbidity and mortality remains a topic, at least, controversial for this population range.

Framingham's studies in the 65-94-year-old subpopulation showed that cholesterolemia continued to impact the incidence of cardiovascular disease only in men, although with less intensity than in younger ones. After 70 years, however, low mortality rates were also seen in patients with high total cholesterol values.

According to Zutpen, cholesterol was more associated with CAD mortality and HDL-cholesterol (high-density lipoprotein) with the incidence of the first coronary event.

In the Duke Epese Study, low HDL-cholesterol was the predictor of mortality from CAD and new coronary events in older adults over 70 years of age, but increased total cholesterol was associated with higher mortality due to CAD only in women [1].

Evidence shows that with high total cholesterol, the risk of CAD is higher in the elderly, and that the effects of low cholesterol are secondary in chronic diseases [2,3].

In longeves older than 85 years (mean of 89 years), cardiovascular diseases are the main cause of death with similar risk in the three cholesterol categories [4].

According to the American Heart Association (AHA), the prevalence of CAD increases with age in men and women. It ranges from 2% of men and 2.8% of women aged 25 to 44 years, to 18.6% in men and 16.1% in women aged 75 years or older.

Manolio et al. reviewed segment data from 25 population groups from 22 cohort. The reviewed data indicated that total cholesterol and LDL-c were significantly correlated with fatal CAD in men and women, in a population range greater than or equal to 65 years. Although the relative risk falls substantially in advanced age (75 or 80 years), data indicate that the high level of serum cholesterol increases the risk of future events related to CAD [5]

The similarity of pathological processes between middle-aged individuals and elderly people over 65 years of age, together with epidemiological data, confer that high cholesterol levels lead to a high risk in the elderly. Angiographic studies show that, even with advanced circulatory disease, the elderly respond to cholesterol-reducing therapy, with reduced risk. Dyslipidemia plays a key role in the progression of CAD and is an important predictor of CAD-related events in elderly individuals.

Statins are widely accepted as effective therapy for secondary prevention of cardiovascular disease. Although studies are limited, such benefits should also be extended to elderly patients [6].

Secondary Prevention

Study 4S, related to syvastatin therapy in patients with hypercholesterolemia and established coronary heart disease, shows a 30% reduction in total mortality and also reduces fatal coronary events by 42%. Coronary procedures decreased by 37% and major coronary events decreased by 34%. Patients over 65 years of age taking syvastatin, when compared to the placebo-treated group, showed a very significant number of deaths, as well as not significant were the main coronary events, when compared to those of patients under 65 years of age [7].

In the CARE study [8] patients with coronary heart disease and average cholesterol level were treated with pravastatin. One group received placebo. Pravastatin therapy reduced the incidence of nonfatal myocardial infarction and death from coronary arteriopathy by 24%. It also reduced revascularization procedures by 27%. It had no statistical significance in reducing total mortality. Elderly patients at CARE had as much benefit as young people in pravastatin therapy.

The Lipid study showed results similar to those of CARE. Additionally, it also showed a reduction in total mortality in patients treated with pravastatin. In Trials, the benefits of statin therapy extended to subgroups of older adults over 65 years of age.

Finally, taking into account the spectacular growth of the population over 65 years of age, including the increased longevity and knowing that if the current conditions of eating error, physical inactivity and inadequate treatment are modified, statin therapy undoubtedly represents a highly positive influence on the survival of this population group.

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