


eComment: Approaching the beneficial impact of statins in patients with abdominal aortic aneurysms

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Undoubtedly, your study has a great interest as it reflects the beneficial effect of statins concerning their anti-inflammatory action. It is notable the fact that patients treated with statins had a better survival freedom from aneurysm repair or rupture especially in the long-term (72.3% at five years) [1]. However, the beneficial impact of statins was even more significant in patients with very small abdominal aortic aneurysms (AAA) (baseline aneurysm diameter <40 mm), a fact that possibly confirmed the more effective action of statins during the initial stage of aneurysmal degeneration. Probably, statins affect the aneurysm expansion through reduced proteolytic activity and more specifically elastolytic activity within the aortic wall. In fact, Abisi et al. demonstrated that the aortic wall of patients receiving statin treatment had a significantly lower level of active MMP-9 (P<0.001) than those not on statin treatment, a lower but not significantly level of active MMP-3 and finally a significantly lower activity of cathepsins H and L [2]. Evans et al. randomized patients undergoing elective open repair of an AAA to a preoperative course of either simvastatin or placebo. It was observed, except for a lower activity of MMP-9, an additional 40% reduction in total MMP-9 concentration in the aortic wall of the simvastatin group [3]. So, your study offers us additional significant clinical evidence concerning the benefit of using statins in patients with abdominal aortic aneurysms, but in our opinion there is a great need for a prospective controlled randomized trial. In addition, trials concerning small aneurysms require long follow-up and accurate aortic imaging in order to assess medication value. In this regard, entry and exit CT with aortic volume and maximum orthogonal diameter measured at the proximal neck of the aneurysm are essential. Finally, the growth is neither regular nor linear and as a consequence, complex statistical modelling is needed in order to provide unbiased estimates of AAA growth.

References
[5] In the present study the authors demonstrated the benefit of using statins (3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors) in patients with abdominal aortic aneurysm (AAA) with few limitations (lack of dosages, types of statin, start point of statin treatment etc.) [1]. Lately, a trend towards fewer interventions for small abdominal aneurysms (AAA) has been noticeable in our hospital. If risk factor reduction and in particular statin therapy is in fact having an effect on the rates of AAA, this may influence interpretation of trials that do not include contemporary controls with optimum medication. For that reason we have looked at the trends in AAA and prescribing of the statin lipid lowering class of medication in our country over the past 10 years to further evaluate the situation. Data on statin usage were obtained from the Croatian Ministry of Health and Welfare between 1994 and 2004. These data included all prescriptions subsidized through Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS). Data provided came in the form of total numbers of prescriptions dispensed according to PBS or RPBS for each item number corresponding to atorvastatin, fluvastatin, pravastatin and simvastatin. Total numbers of statin prescriptions dispensed were obtained for each calendar year, and subsequently divided by 12 to obtain a monthly estimate. As each statin prescription dispensed in our country contains a 14-day supply of medication, this calculation was assumed to approximate the number of persons taking statin drugs in any given year. Our results show that the exponential-like rise in the prescribing of statin medications over the last decade is remarkable. According to our field evaluation results, the main reason for such a rise is the fact that the doctors accept that the primary mechanism of action of the statin group drugs is a lowering of serum cholesterol through the inhibition of the hepatic enzyme HMG-CoA reductase. Another concern is that experimental studies have shown that cholesterol lowering with statin therapy may slow the progression [2], and induce regression of atherosclerotic plaques involving peripheral arteries [3].

Our investigation shows another important factor. Another class of cardiovascular drugs, the angiotensin converting enzyme (ACE) inhibitors has also been shown to reduce proliferation of vascular smooth muscle and to decrease angiotensin-II mediated atherosclerosis, plaque rupture and vascular occlusion [4], independent of their blood pressure lowering effects. The ACE inhibitors are also subsidized under the PBS and RPBS and have experienced significant growth in prescribing rates in recent years. It is possible that the widespread use of this class of medications may also have contributed to the postulated effect of statin medications on the incidence of increasing the AAA. The impact of risk factor lowering medication, such as the statins, on asymptomatic AAA patients may alter the need for open surgical repair (OSR) or endovascular aortic repair (EVAR) for AAA.

Although no definitive conclusions can be drawn yet, I am hoping that our data could have some benefit for future studies. Future studies clearly require contemporary controls ‘best medical management’ takes into account the prescribing of statins as well as other risks lowering medications in AAA patients.

References

