

## Statins in Patients with Chronic Kidney Disease: To Give or Not To Give

Camelia C Diaconu\*

University of Medicine and Pharmacy "Carol Davila", Clinical Emergency Hospital of Bucharest, Romania

Patients with chronic kidney disease (CKD) have a high risk of cardiovascular diseases, which represent the main cause of death in these patients. Dyslipidemia is a frequent paraclinical finding in patients with chronic kidney disease and an important contributor to the further deterioration of renal function. Therefore, lipid lowering treatment is very important in patients with chronic kidney disease. Statins are a widely used class of drugs, for primary and secondary prevention of cardiovascular events and death in patients with confirmed cardiovascular disease or very high risk. They are used not only for their lipid regulation action but also for their pleiotropic effects, such as atheromatous plaques stabilization or antiinflammatory effect. The beneficial effects of statins in preventing the development and progression of renal dysfunction seem to be independent of their lipid-lowering effect. However, in patients with chronic kidney disease, there is a debate on the indications and contraindications of statin treatment, and also on their beneficial effects. In a meta-analysis published in 2013, the authors have found that statin treatment produced a 23% decrease of the risk of major cardiovascular events (but not cerebrovascular disease) or an 18% per 1 mmol/L lowering of LDL-cholesterol in patients with CKD (including patients on hemodialysis) [1]. The same authors observed that the beneficial effects of statins were lower in patients with lower estimated GFR (eGFR), in those with stage 5 kidney disease and those requiring hemodialysis. The subgroup analysis indicated that statin effect was significantly influenced by the status of the kidney function. A controversial issue of this meta-analysis was that trials with dialysis and non-dialysis patients were combined, and the statin effects might be different in patients with different grades of CKD.

Another meta-analysis showed similar results by analyzing separately patients with different stages of CKD and renal replacement therapy. They concluded that statins decreased the rate of cardiovascular events and mortality in individuals with early stages of CKD and had no effects in patients with more advanced CKD, on hemodialysis [2].

A number of studies have evaluated the effect of statin treatment on renal outcomes of patients with CKD. There is a known correlation between proteinuria and progression of CKD, on one hand, and between proteinuria and cardiovascular diseases, on the other hand. Therefore, some studies evaluated the effect of statin treatment on proteinuria. A meta-analysis of this studies reported a reduction by 48% of albuminuria in patients with moderately or severely increased albuminuria on statin therapy [3]. Two randomized large studies did not found any effect of statins on albuminuria in hypertensive patients with good blood pressure control under treatment with angiotensin blockers: PREVEND-IT trial and ESPLANADE trial [4,5].

The 2013 American College of Cardiology (ACC)/American Heart Association (AHA) guideline recommends statin treatment for patients with a high cardiovascular risk (history of heart disease, stroke, atherosclerotic peripheral arterial disease, diabetes mellitus, hyperlipidemia or those with an estimated 10-year risk of at least 7.5%); patients already on hemodialysis are unlikely to benefit from statin treatment, therefore no recommendation was made about starting or continuation of statins treatment in these patients [6]. However, the Kidney Disease: Improving Global Outcomes (KDIGO) guideline

from 2013 recommends statins in all patients between 50-79 years old with CKD; the same guideline recommend that adults with CKD on dialysis should not begin treatment with statins or statin/ezetimibe and those already taking a statin at the time of dialysis should continue the treatment [7].

In the real life, the statin use among patients with CKD at risk for cardiovascular events is probably lower than among similar patients with normal kidney function.

### References

1. Hou W, Lv J, Perkovic V, Yang L, Zhao N, et al. (2013) Effect of statin therapy on cardiovascular and renal outcomes in patients with chronic kidney disease: a systematic review and meta-analysis. *Eur Heart J* 34: 1807-1817.
2. Palmer SC, Craig JC, Navaneethan SD, Tonelli M, Pellegrini F, et al. (2012) Benefits and harms of statin therapy for persons with chronic kidney disease: a systematic review and meta-analysis. *Ann Intern Med* 157: 263-275.
3. Douglas K, O'Malley PG, Jackson JL (2006) Meta-analysis: the effect of statins on albuminuria. *Ann Intern Me* 145: 117.
4. Athobari J, Brantsma AH, Gansevoort RT, Visser ST, Asselbergs FW, et al. (2006) The effect of statins on urinary albumin excretion and glomerular filtration rate: results from both a randomized clinical trial and an observational cohort study. *Nephrol Dial Transplant* 21: 3106-3114.
5. Ruggenenti P, Perna A, Tonelli M, Loriga G, Motterlini N, et al. (2010) Effects of add-on fluvastatin therapy in patients with chronic proteinuric nephropathy on dual renin-angiotensin system blockade: the ESPLANADE trial. *Clin J Am Soc Nephrol* 5: 1928-1938.
6. Stone NJ, Robinson J, Lichtenstein AH, Merz CNB, Blum CB, Eckel RH, et al. (2013) ACC/AHA guideline on the treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk in adults. A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol* 1-85.
7. (2013) Kidney Disease: Improving Global Outcomes (KDIGO) Lipid Work Group. KDIGO Clinical Practice Guideline for Lipid Management in Chronic Kidney Disease. *Kidney inter* 3: 259-305.

\*Corresponding author: Camelia C Diaconu, Clinical Emergency Hospital, Clinic of Internal Medicine Calea Floreasca, 8, sector 1, 014461, Bucharest, Romania, Tel: 004 0215992300/102; E-mail: [drcameliodiaconu@gmail.com](mailto:drcameliodiaconu@gmail.com)

Received November 28, 2015; Accepted November 29, 2015; Published November 30, 2015

Citation: Diaconu CC (2015) Statins in Patients with Chronic Kidney Disease: To Give or Not To Give. *Pharm Anal Acta* 6: 448. doi:10.4172/21532435.1000e182

Copyright: © 2015 Diaconu CC. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.