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EFFECTS OF STATINS THERAPY ON LDL SUBFRACTIONS AND INFLAMMATION, IN END-STAGE RENAL DISEASE PATIENTS ON DIALYSIS

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INTRODUCTION: Cardiovascular (CV) events are the main causes of death in end-stage renal disease (ESRD) patients on dialysis. It has been hypothesized that lipoproteins' quality (size, composition and functionality) may be more important as CV disease risk factor than their total circulating levels. In fact, smaller low-density lipoprotein (LDL) subpopulations are more atherogenic than larger LDL subpopulations. Treatment with statins provides CV protection by reducing the levels of LDL cholesterol (LDLc); however, in ESRD patients on dialysis, the reduction in LDLc has not been associated with a significant reduction in CV events. Given the importance of LDL quality, our aim was to evaluate in ESRD patients on dialysis the effects of statins on LDL subfractions and on inflammation, a hallmark of ESRD.

METHODS: This study included 194 ESRD patients on dialysis; 105 (54.1%) were under statins therapy and 89 (45.9%) were not receiving lipid-lowering drugs. We evaluated high-sensitivity C-reactive protein (hsCRP), interleukin (IL)-6, lipid profile and lipoprotein fractions and subfractions, namely LDL subfractions.

RESULTS: Patients under statins therapy, compared to patients not receiving statins, presented lower levels of total cholesterol (TC), LDLc, TC/high-density lipoprotein (HDL)c, LDLc/HDLc, IL-6 and hsCRP; the evaluation of lipoprotein subpopulations showed higher values of intermediate-density lipoprotein (IDL)-B, and no significant alterations in very-low-density lipoprotein (VLDL), in larger and smaller LDL, or in LDL size.

CONCLUSIONS: Our data showed that statin therapy, actually, induces a reduction in LDLc levels and in the inflammatory process characteristic of the uremic milieu, but it is unable to change LDL subfractions profile. In fact, the percentages of smaller and denser LDL particles, the most atherogenic LDL subfractions, do not decrease with statins therapy; thus, the unaltered profile of LDL subpopulations may contribute to

explain the limited benefits of statins therapy on CV events in ESRD patients on dialysis.

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