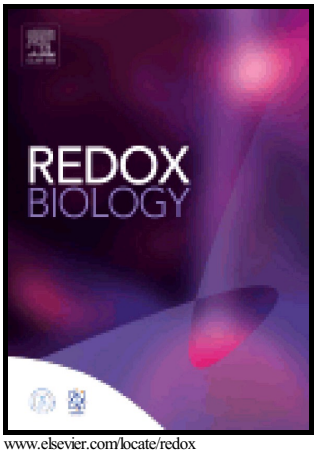

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Lipidomics reveals accumulation of the oxidized cholesterol in erythrocytes of heart failure patients

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Abstract

Lipids play an important role in the pathogenesis of cardiovascular disease. Changes in lipids of erythrocytes are indicative of the outcome of pathophysiological processes. In the present study, we assessed whether the lipid profiles of erythrocytes from heart failure (HF) patients are informative of their disease risk. The lipidomes of erythrocytes from 10 control subjects and 29 patients at different HF stages were analyzed using liquid chromatography time-of-flight mass spectrometry. The lipid composition of erythrocytes obtained from HF patients was significantly different from that of normal controls. The levels of phosphatidylcholines (PCs), phosphatidylethanolamines (PEs), and sphingomyelins decreased in HF erythrocytes as compared with those of control subjects; however, the levels of lysoPCs, lysoPEs, and ceramides increased in HF erythrocytes. Notably, the oxidized cholesterol 7-ketocholesterol (7KCh) accumulated to higher level in HF erythrocytes than in