RETROVIROLOGY

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Ageing, metabolism and HIV

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HIV infection is now considered as a chronic disease, most patients being well-controlled and experiencing long-term survival. However, these patients encounter an increasing number of complications and in particular of age-related comorbidities occurring earlier than in the general population: cardiovascular disease, dyslipidemia, diabetes, osteoporosis, liver and kidney failure, neurocognitive impairment, non-AIDS defining cancers. Therefore, it is now considered than some patients present a phenotype of premature aging, the origin of which remains unknown.

In the general population, most age-related comorbidities including cancer have been linked to long-term chronic inflammation (inflammaging). This inflammation could partly result from adipose tissue redistribution and hypertrophy leading to insulin resistance, dyslipidemia and altered glucose tolerance. Inflammation is also involved in the occurrence of atherosclerosis and increased cardio-vascular risk, osteoporosis, liver dysfunction and neurocognitive disorders. Two main contributors to cellular senescence and inflammation are activation of the monocyte/macrophage system and increased oxidative stress.

In HIV-infected patients, recent works indicate that even well-controlled patients present low-grade inflammation as shown by increased level of CRP. Links between CRP, increased intima-media thickness and the occurrence of myocardial infarction have been shown. Similarly, it is hypothesized than brain inflammation could play a role in neurocognitive impairment presented by some patients. The origin of increased inflammation is probably complex and multifactorial. A role for persistent viral infection is postulated and infected immune cells such as macrophages can produce deleterious viral proteins, induce an oxidative stress and release pro-inflammatory cytokines. Long-term immune activation could result in immunosenescence and increased proinflammatory cytokines level. Some antiretroviral drugs induce an oxidative stress. Finally, patients' linked parameters are important to consider: age, smoking, metabolic disorders, hypertension, vitamin D deficiency and life-style environment (lipid-rich diet, sedentarity).

It is important to control these alterations: treat early, avoid drugs with specific tissue toxicity in patients with risk factors, take in charge the metabolic alterations (hypertension, dyslipidemia, diabetes), compensate vitamin D deficiency if present. A safe life-style (stopping smoking, exercise, diet) is strongly recommended for these patients.

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