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LETTER TO THE EDITOR

Comment on Mycophenolic acid attenuates the tumour necrosis factor-a-mediated proinflammatory response in endothelial cells by blocking the MAPK/NF-κB and ROS pathways by Olejarz *et al.*

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Chronic inflammatory diseases and systemic autoimmune conditions can result in the development of inflammatory vascular disease (IVD). The inflammatory response in the vascular bed involves several partners including pro-inflammatory cells (macrophages, lymphocytes, monocytes and neutrophils), as well as vascular smooth muscle cells, extracellular matrix components and endothelial cells [1]. The latter play an important role because vascular injury can be initiated by their increased activation, increased expression of adhesion molecules and recruitment of pro-inflammatory cells [2–4]. Pro-inflammatory cytokines, including tumour necrosis factor-a, are released from several sources, including by macrophages, T cells, endothelial cells and monocytes, generating a chain of events which can lead to cardiovascular complications including atherosclerosis [4, 5]. Hence, one requirement for translational research is the search of effective anti-inflammatory agents which can act on the major players involved in IVD, avoiding downstream consequences for the patient.

The paper by Olejarz *et al.* [6] elegantly demonstrates that mycophenolic acid (MPA), a metabolic product of mycophenolate mofetil (MMF), a drug used in the clinic as an immunosuppressant agent [7, 8] is able to decrease inflammatory responses in endothelial cells by inhibiting the expression of specific cell adhesion molecules ICAM-1 and VCAM-1, which limits the adhesion of mononuclear leucocytes to endothelial cells. Although the potential use of MMF as an anti-atherogenic drug is not new [9, 10], this study provides important mechanistical input, namely by attributing to MPA several subcellular effects which were previously unknown. The paper by Olejarz *et al.* also typifies the standard for a basic research work, entirely performed *in vitro*, but which has a clear translational application. In fact, as MMF presents a clear anti-atherogenic effect, its use in the clinical to decrease transplant rejection is further justified by this important vascular effect. In fact, vascular alterations are widely reported after organ transplantation, including calcification and atherosclerosis [11–13], which may imply that the use of MMF, through its metabolite MPA, would be helpful in these patients. Although MMF use after organ transplantation is associated with side effects including anaemia [14], an optimization of treatment regimens and combinatory possibilities is now required to improve the quality of life of patients. Furthermore, the road is now open for subsequent studies aimed at understanding whether MMF can be safely used as an effective stand-alone anti-atherogenic agent in patients in the absence of any organ transplantation.

Based on the importance and translational nature of this study, the Council of the European Society of Clinical Investigation (ESCI) decided to award the best basic/translational research article published in European Journal of Clinical Investigation (EJCI) from October 2013 to October 2014 to Olejarz and colleagues.

Conflict of interest statement

None to be declared.

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