LXV JCET LECTURE, 08.06.2015, 9.00

Is vascular histamine implicated in systemic inflammation?

Katerina Tiligada, PhD

Department of Pharmacology

Medical School, University of Athens

Athens, Greece

Systemic inflammation may be a non-traditional risk factor underlying the increased prevalence of cardiovascular disease in inflammatory disorders, including arthritis. Although histamine is known to elicit multiple essential functions in mammalian (patho)physiology, its contribution in the cardiovascular dysfunction that couples chronic multisystem inflammation is currently unclear. We used an *in vivo* translational model of adjuvant-induced arthritis to investigate the association of vascular histamine with arthritis and to examine the ability of histamine receptor ligands to modify this putative interaction. The findings argued for the implication of increased vascular histamine levels in the systemic extra-articular inflammatory response that is associated with joint destruction. Ligands targeting the newer high-affinity histamine H_3 and H_4 receptors, but not the low-affinity H_1 receptors, elicited a concerted action on the constitutive regulation of basal histamine levels in the large blood vessels. Furthermore, the H_3 receptor has been identified as a component that may influence arterial histamine levels during the onset of arthritis. Overall, pharmacological evidence reveals the implication of H_3 and H_4 receptors in the modulation of vascular functions that may be critical for the future development and therapeutic potential of histamine receptor ligands.