

Matrix metalloproteinases in neurological pain syndromes: friends, foes and therapeutic targets

Shaheen E Lakhan
Cleveland Clinic, USA

Matrix metalloproteinases (MMPs) constitute a family of zinc-dependent endopeptidases that mediate extracellular matrix turnover and associated processes, such as developmental morphogenesis and wound healing. The non-matrix functions of these enzymes include cell survival, growth and differentiation. The discussion will focus on important functions of MMP in the normal and injured nervous system especially on the role played by these proteases in neurological pain syndromes, most prominently in neuropathic pain and migraine headaches. In the past decade, metalloproteinases emerged as key modulators of neuropathic pain, with MMP-9 acting as an initiator of the neuropathic cascade. Increased MMP activity was detected in migraine patients, independent of aura, in tight association with metabolic derangements. The therapeutic implications of MMP inhibition are considered in the context of neurogenic pain regulation.

Biography

Dr. Shaheen E Lakhan, MD, PhD, MEd, MS, is the executive director of the Global Neuroscience Initiative Foundation, Los Angeles, CA. He is also resident physician in neurology at the Cleveland Clinic, Cleveland, OH. He has authored more than 40 peer-reviewed papers and serves on the editorial boards of several major journals

slakhan@gnif.org