Possible role of granulysin in pathogenesis of osteoarthritis

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Abstract

Increased presence of immune mediator and cytotoxic/apoptotic molecule granulysin was noticed in different tissues during pathological processes with the domination of Th1 over Th2 mediated immunity. Beside granulysin expression in T and NKT cells, activated NK cells are thought to be the major source of chemotactic 15 kDa and cytotoxic 9 kDa granulysin *in vivo*. As NK cells are the principal joint's tissue-infiltrating lymphocyte subset, we hypothesized that granulysin mediated human cell death (apoptosis) could be responsible for the relatively silent damage of the joint's tissue without clinically notable signs of systemic inflammation in the patients with osteoarthritis (OA). The analyzes of the presence and frequency of granulysin expressing lymphocytes at protein and gene levels in peripheral blood and synovial samples and/or the samples of joint's tissue after the joint replacement therapy in patients with OA could give the initial insight to evaluate our hypothesis. It would be of the particular interest to differentiate the expression of 9 kDa and 15 kDa granulysin forms in the effector cells, since only the shorter form exhibits cytotoxic properties. The measurement of granulysin mediated early apoptosis in human NK sensitive K562 cells could be suitable *in vitro* model for evaluating granulysin activity. Furthermore, disturbed balance of pro-inflammatory and anti-inflammatory cytokines in OA patients, could influence the level of the granulysin expression. Having in mind that the granulysin and its regulation is still unknown in the pathogenesis of OA, it

could be worth to explore this important pro-inflammatory, cytotoxic/apoptotic mediator.

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