OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Clinical & Cellular Immunology
October 15-17, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

Impaired resolution of inflammation and endotoxin tolerance induction in auto inflammation

Tigran K. Davtyan
Scientific Centre of Drug and Medical Technology Expertise, Republic of Armenia

Purpose: The nature of heightened endotoxin sensitivity state observed in Familial Mediterranean fever (FMF) at present remains unknown. To assess the possibility that IL-10 plays a role in setting inflammatory threshold we studied the IL-10 production by monocytes and dendritic cells and endotoxin tolerance induction in FMF patients.

Methods: 46 attack free FMF patients included in this study. The production of IL-10 by NLR- or TLR-agonists stimulated monocytes and dendritic cells assayed either by conventional ELISA and flow cytometry. Versatility of monocytes studied by measuring the production of IL-10 and IL-1β after stimulation by pro- and anti-inflammatory agents, and after stimulation arrest or a further counter stimulation. Monocyte endotoxin tolerance and cross-tolerance induction assayed by measuring the production of IL-1β, IL-10, TNF-α and IFN-γ after pre-stimulation by NLR- or TLR-ligands and after re-stimulation with LPS.

Results: In FMF patients we observed down-regulation of circulating $CD36^+$ peripheral blood lymphoid cells but not monocytes, constitutively producing IL-10. The production of IL-10 by TLR- and NLR-agonists stimulated monocytes and dendritic cells is declined in FMF patients. Monocytes isolated from FMF patients failed to switch from a pro-inflammatory activated state to anti-inflammatory phenotype and still produce IL-1β but not IL-10, which cause impaired endotoxin tolerance and cross-tolerance induction. The IL-10 production and endotoxin tolerance induction by monocytes and dendritic cells restored by NOD2- ligand MDP and colchicine treatment.

Conclusion: Reduced IL-10 production associated with impaired setting of feedback inhibition of inflammatory response and caused impaired resolution of inflammation and endotoxin tolerance induction.

tigdav@excite.com