2 IGG GLYCAN HYDROLYSIS BY ENDOS DIMINISHES THE PRO-INFLAMMATORY PROPERTIES OF IMMUNE COMPLEXES FROM PATIENTS WITH SLE – A POSSIBLE NEW TREATMENT?

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Background and objectives Systemic lupus erythematosus (SLE) is an autoimmune disease with chronic or episodic inflammation in several organ systems, related to the presence of circulating and tissue-deposited immune complexes (ICs) which stimulate leucocytes through FcγRs with subsequent inflammation. Treatment with EndoS, an IgG glycan hydrolysing bacterial enzyme from *Streptococcus pyogenes,* has shown beneficial effects in several experimental animal models of chronic inflammatory disease. In the present study the authors asked if EndoS could affect pro-inflammatory properties of ICs and have the potential to be developed as a therapy in SLE.

Materials and methods ICs, purified from SLE patients or RNA-containing ICs formed in vitro, were treated with EndoS and used in several assays reflecting different important parts of SLE pathogenesis such as phagocytosis by polymorphonuclear neutrophils (PMNs) and plasmacytoid dendritic cells (pDCs), complement activation and IFNα production by pDCs.

Results Our results demonstrate that EndoS treatment could abolish all pro-inflammatory properties of ICs investigated. This includes FcγR-mediated phagocytosis by pDCs ($p<0.0001$) and subsequent production of IFNα ($p<0.0001$), IC-induced classical complement pathway activation ($p<0.0001$), chemotaxis and oxidative burst activity of PMNs ($p=0.002$). The authors could also demonstrate direct effects on the molecular structure of ICs after EndoS treatment with decreased size and glycosylation patterns.

Conclusions Prominent effects of EndoS treatment were seen in several pathogenetically important IC-mediated events and our data suggest that EndoS have the potential to be developed as a novel therapy in SLE.