P161	SINGLE NUCLEOTIDE POLYMORPHISMS IN GENES FOR CYTOKINES IL-1a, IL-6 AND TNFa ARE ASSOCIATED WITH OSTEOLYSIS IN TOTAL HIP ARTHROPLASTY	Jiri Gallo, Frantisek Mrazek, Zuzana Ambruzova, Zuzana Kubistova, Jana Onderkova, Eva Kriegova, Martin Petrek

Introduction: Periprosthetic osteolysis (PPOL) remains the chief cause of total hip arthroplasty failures. Proinflammatory cytokines have been implicated in the complex pathogenesis of PPOL. Genes coding for these cytokines and also for their receptors are polymorphic: especially single nucleotide polymorphisms (SNP) in promoter regions of cytokine genes regulate production of cytokine proteins. Variations in cytokine genes may, therefore, be associated with individual susceptibility to the development of PPOL either as a risk factor or a disease modifier.

Aim: To investigate whether polymorphisms in genes coding for selected cytokines and cytokine receptors represent genetic factors for development of PPOL at the acetabular site (Ref. 1).

Methods: 195 patients with failed total hip arthroplasty were classified according to the occurrence and severity of PPOL into three groups: 1) 82 patients with mild PPOL (Saleh I, II), 2) 86 patients with intermediate PPOL (Saleh III) and 3) 27 patients with severe PPOL (Saleh IV, V). Heidelberg kit covering twenty-two SNPs in the genes for IL-1, IL-1R, IL-2, IL-4, IL-4R, IL-6, IL-10, IL-12, TNFa, TGFb, and IFNg was used for genotyping by polymerase chain reaction with sequence specific primers, PCR-SSP (Ref. 2). The comparisons were made by chi-square test using Woolf-Haldane correction for small numbers and the differences were considered significant if $p \leq 0.01$.

Results:
Patients with mutant T allele of IL-1A-889 SNP had three times higher risk of developing expansive PPOL than those without this allele, i.e. the presence of T allele carried an increased relative risk (OR 3.6, p=0.01) of severe PPOL. Importantly, patients carrying standard G allele of the IL-6-174 SNP were in greater chance of developing severe PPOL (OR 2.4, p=0.01). Also, carriage of mutant TNF-238*A implied a trend for susceptibility for PPOL (OR 4.8, p=0.02).

Conclusion: Our data indicate that defined variants in proinflammatory cytokine genes IL-1a, IL-6 and TNFa are associated with the severity of acetabular PPOL resulting in premature total hip arthroplasty failure.

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Ref. 1: Saleh et al., JBJS, 83A: 1040, 2001.
Ref. 2: Kubistova et al., IJIG, 33: 261, 2006.