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Title: Peripheral Thelper1/Thelper2/Thelper17/regulatory T cell imbalance in asthmatic pregnancy

Dr. Lilla 5024 Tamási tamasi@pulm.sote.hu MD ¹, Dr. Gergely 5026 Toldi toldigergely@yahoo.com ², Dr. Attila 5027 Molvarec molvarec@freemail.hu ³, Dr. Balázs 5028 Stenczer stenczerb@gmail.com ⁴, Dr. Veronika 5029 Muller mulver@pulm.sote.hu ¹, Mr. István 5025 Ivancsó ivancso.isti@gmail.com ⁵, Dr. Noémi 5030 Eszes noemi.eszes@gmail.com ¹, Dr. András 5031 Bikov andras.bikov@gmail.com ¹, Dr. Anikó 5032 Bohács Drbohacs@freemail.hu ¹, Prof. Dr János 5033 Rigó Jr. rigo.janos@noi1.sote.hu ³ and Prof. Dr György 5034 Losonczy losonczy@pulm.sote.hu ¹. ¹ Department of Pulmonology, Semmelweis University, Budapest, Hungary, 1125 ; ² Semmelweis University, 1st Department of Pediatrics, Budapest, Hungary, 1082 and ³ Semmelweis University, 1st Department of Obstetrics and Gynecology, Budapest, Hungary, 1082 .

Body: Asthma and pregnancy show bilateral clinical interactions with mostly unknown immunological mechanisms. Healthy gestation is characterized by a sensitive balance of Th1/Th2/Th17/regulatory T (Treg) cells which may be altered in asthmatic pregnancy. The aim of this study was to describe the prevalence of these cell subsets in asthmatic compared with healthy pregnancy. The prevalence of Th1, Th2, Th17 and Treg lymphocytes was identified by cell surface and intracellular marker staining in 24 healthy non-pregnant (HNP), 23 healthy pregnant (HP), 15 asthmatic non-pregnant (ANP) and 15 asthmatic pregnant (AP) women using flow cytometry. HP and ANP were characterized by increased Th2/Th1 ratio compared to HNP, but no further increase was observed in AP. Healthy pregnancy increased Treg cell prevalence compared with HNP data (4.64% vs. 2.98%; $p<0.05$), and this pregnancy-induced elevation was absent in AP women (2.52% vs. HP; $p<0.05$). Th17 cell prevalence was similar in the HP and HNP groups (2.78% vs. 3.17%; $p>0.05$). Asthma increased Th17 prevalence in non-pregnant patients (3.81% vs. HNP; $p<0.05$), and this asthma specific increase of Th17 cell prevalence was also observed in AP patients (AP vs. HP: 3.44% vs. 2.78%; $p<0.05$). As a result, Th17/Treg ratio was decreased in HP, but not in AP women, compared with HNP data. Peripheral Thelper1/Thelper2/Thelper17/regulatory T cell imbalance may play a role in the interrelationship and compromised immune tolerance characterizing asthmatic pregnancy.