Frequency of human hepatic ILC is associated with obesity

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Background

The discovery of innate lymphocyte cells (ILCs) has represented a major paradigm shift in immunology. Described as mirror of their counterparts CD4 Th cells, lacking TCR receptor, ILCs are involved in different roles including host defense against pathogens, inflammatory responses and tissue repair. Yet, hepatic ILCs have been very well studied in mouse models but human hepatic ILCs still not very well characterized.
In the present study, we investigate human hepatic ILCs phenotype and functions in human liver biopsies from bariatric surgery of patients with different body mass index (BMI) and also from human liver tissues of patients with diverse liver pathology. The goal of the present study was to describe phenotype and biological function of human hepatic ILCs.

Methods

Human biopsies were collected during bariatric surgery and processed directly. Patients profile, liver biopsies histology, flow cytometry analyze, qPCR and cytokines stimulations has been applied on human liver ILCs.

Results

The most abundant ILC in the liver were Lin-CD117+CD127+CD161+ cells, which express also GATA3, CRTH2 and NKP46. In vitro these cells secrete Th2 cytokines including IL-5 and IL-13 under stimulation with IL-33 and TSLP. We noticed that the frequency of these rather ILC2 like cells tend to decrease in morbid obese patients with high BMI (>40kg/m2) compared to patients with lower BMI (<40kg/m2). This decrease is associated with a decrease in the secretion of IL-22.

Conclusion

We describe specific subsets of human hepatic ILCs that secrete, IL-5, IL-13 and IL-22. Morbid obesity is associated with the decrease of a specific ILC fraction.

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