**PHENOTYPIC PROFILE OF MONOCYTES AND INFLAMMATORY CYTOKINES INVOLVEMENT IN THE CELLULAR IMMUNITY OF SICKLE CELL ANEMIA CARRIERS. Garcia NP\*\*1,2; Silva-Júnior AL\*1 Santos APC\*1; Soares GAS\*1; Costa TCC\*\*1,3; Tarragô AM\*\*1,2; Costa AG1,2,3; Martins-Filho OA4; Paula EV5; Marie AMA1,2,3. 1Fundação Hospitalar de Hematologia e Hemoterapia do Estado do Amazonas (HEMOAM); 2Programa de Pós-Graduação em Imunologia Básica e Aplicada-UFAM; 3Programa de Pós-Graduação em Ciências Aplicadas a Hematologia-UEA; 4**Centro de Pesquisas René Rachou-Fiocruz MG; 5**Faculdade de Ciências Médicas da UNICAMP.**

**Introduction:** Sickle cell anemia (SCA) is a chronic inflammatory genetic disease that presents a high degree of vaso-occlusion and endothelial dysfunction with innate immunity cells activation, as monocytes, which are recruited into the obstructed blood vessel. The aim of this study is to characterize the phenotypic profile of monocytes and cytokines involved in the pathophysiology of SCA. **Methods and Results:** We collected 30 samples from HbSS patients at steady state, 20 (67%) were female (29,9 ± 8,9 years) and 53 samples from healthy donors (HD), 37 (70%) were male (32,2 ± 11,5 years). Immunophenotyping of monocyte subpopulations were performed by flow cytometry using specific markers (CD14, CD16, CD80 and HLA-DR), analyzed by the FlowJo v.7.1 program. TNF-α, IL-1β, IFN-γ, IL-12 and IL-6 were measured by the Bio-Plex Pro Human Cytokine Standard 27-Plex Kit using the Luminex technique, analyzed by Bioplex Manager Software. Data analysis was done using GraphPad Prism v. 5.0 for two-tailed Mann-Whitney test with a 95% confidence interval and the data considered with statistical significance were those with p value <0.05. No statistical difference was found between classical (p = 0.0896) and nonclassical (p = 0.2534) monocytes among the HD and HbSS group, as well as TNF-α serum level (p = 0.0852). However, a significant increase in inflammatory monocytes (p = 0.0023) was observed in HbSS group, as IL-1β (p = 0.0001), IFN-γ (p = 0.0032), IL- 12 (p = 0.0004) and IL-6 (p = 0.0095) cytokines compared to HD group. **Conclusion:** The present study suggests that inflammatory monocytes and cytokines secreted by these cells appear to contribute to aggravate inflammation in patients with AF, even at steady state. However, further studies are needed with evaluation of other markers and more robust analyzes for correlation with other immunological and clinical parameters. Support : FAPEAM, CNPq, CAPES, UFAM, HEMOAM. 