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INMUNE STATUS ON HAEMODIALYSIS PATTIENTS AFFECTED WITH COVID19 INFECTION

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BACKGROUND AND AIMS: End-stage renal disease patients on haemodialysis (HD) seem more likely to develop severe COVID19 disease. Over the course of COVID disease, we observed a poor tolerance to HD sessions with a marked tendency of clinical deterioration over them.
The objective is to evaluate changes on immunological system over HD session on patients affected with COVID19 compared with patients without COVID19.
METHOD: Fourteen HD patients were studied including 9 confirmed COVID19 infection and 5 healthy controls. Predialysis and postdialysis blood samples were compared to study alterations on immune status. We identified cytoKines by Luminex (CCL2, CXCL10, IL1Ra, IL10, IL12p70, TNFα, IL17Ra, IL6, IL7) and adaptive lymphocyte subsets (CD4/CD8 naïve, CD4/CD8 MC, CD4/CD8 MP, CD19, CD56). Monocyte subsets (CD14+CD16-, CD14+CD16+, CD14-CD16+) were detected from peripheral blood mononuclear cells (PBMC), as well as immune activation (CD11b, HLA-DR, CD86) and migration factors (CCR2, CCR5). The supernatant of isolated CD14+ cells after 4-hour stimulation with LPS where analysed by Luminex to measure cytokines (CCL2, CXCL10, GM-CSF, IL10, IL12p70, IL17Ra, IL6, IL7, TNFα).
RESULTS: Patients with COVID19 presented predialysis: (1) higher plasmatic levels of IL12p70, TNFα e IL7, (2) lymphopenia and neutrophilia, (3) higher percentage of intermediate monocytes and lower of non-classical, (4) lower membrane expression of CCR2, HLA-DR y CD86 over Cd14+ cells, and (5) higher production of CCL2, GM-CSF, IL10, IL12p70 y IL17Ra by LPS stimulated monocytes compared with patients without COVID19. When analysed the fold-change between pre and postdialysis values, patients with COVID19 infection present a: (a) higher plasmatic levels of IL6, IL1Ra, CCL2 e CXCL10, (b) reductions of total lymphocites, (c) higher membrane expression of CCR2, CD33 y CD86 on CD14+ cells, and (d) higher production of TNFα, GM-CSF, IL10, IL17, IL6 e IL7 by LPS stimulated monocytes compared with patients without COVID19. No differences on lymphocite subset were found.
CONCLUSION: The clinical deterioration on COVID19 infected patients over HD session could be related with monocyte activation and pro-inflammatory cytokines secretion.