Microbiota Effect with Cytokine in Hl and NHL Patient Group

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Abstract : Aim: ChemotherapytreatmentinHodgkinLymphomaandNon-HodgkinLymphoma (NHL) diseasescausesgastrointestinalepithelialdamage, disruptstheintestinalmicrobiotabalanceandcausesdysbiosis. Inourstudy, it wasaimedtoshowtheeffect of thedamagecausedbychemotherapy on themicrobiotaandtheeffect of thechangingmicrobiota flora on thecourse of thedisease. Materials And Methods: Seven adult HL and seven adult HL patients to be treatedwithchemotherapywereincluded in the study. Stoolsampleswerеtakentwice, beforechemotherapytreatmentandafterthe 3th course of treatment. SampleswereresequencedusingNextGenerationSequencing (NGS) methodafternucleicacidisolation. OTU tableswerepreparedusing NCBI blastnversion 2.0.12 accordingtothe NCBI general 16S bacterialtaxonomyreferencedated 10.08.2021. Thegenerated OTU tableswerecalculatedwith R Statistical Computer Language version 4.04 (readr, phyloseq, microbiome, vegan, descrand ggplot2 packages) to calculate Alpha diversityandtheirgraphicswerecreated. Statistical analyzeswerealsoperformedusing R Statistical Computer Language version 4.0.4 and studio IDE 1.4 (tidyverse, readr, xlsxand ggplot2 packages). Expression of IL-12 and IL-17 cytokineswasperformedbyrtPCRtwice, beforeandaftertreatment. Results: InHL patients, a significantdecreasewasobserved in themicrobiota flora of Ruminococcaceae_UCG-014 genus (p:0.036) andUndefined Ruminococcaceae_UCG-014 species (p:0.036) comparedtopre-treatment. When the post-treatment of HL patientswerecomparedwithhealthycontrols, a significantdecreasewasfound in themicrobiota of Prevotella_7 genus (p:0.049) andButyricimonas (p:0.006) in the post-treatmentmicrobiota of HL patients. InNHL patients, a significantdecreasewasobserved in themicrobiota flora of Coprococccus_3 genus (p:0.015) andUndefined Ruminoclostridium_5 (p:0.046) speciescomparedtopre-treatment. When post-treatment of NHL patientswerecomparedwithhealthycontrols, a significantabundance in theBacilliclass (p:0.029) and a significantdecrease in theUndefinedAlistipesspecies (p:0.047) wereobserved in the post-treatmentmicrobiota of NHL patients. While a decreasewasobserved in IL-12 cytokineexpressionuntilbeforetreatment, an increase in IL-17 cytokineexpressionwasdetected. Discussion: Intestinal flora monitoringafterchemotherapytreatmentshowsthat it can be a guide in thetreatment of thedisease. It is thoughtthatincreasingthediversity of commensalbacteria can alsopositivelyaffecttheprognosis of thedisease.

Keywords : hodgkin lymphoma, non-hodgkin, microbiota, cytokines
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