# Summary

Celiac disease (CD) and type 1 diabetes mellitus (T1DM) are so far ,thought two auto-immune disease .These two diseases have revealed shared characteristics regarding predisposing factors and Auto-antibodies profile. One of the genetic predisposing factors is thought to be HLA-DQ2(DQA1*05 and DQB1*02).and DQ8(DQA1*03 and DQB1*310). In addition there is an overlapping in auto-antibodies produced during courses of each disease. The detection of Anti-gliaden IgA and IgG auto-antibodies, and anti-tissue tranglutamenase IgA and IgG were routinely used in the diagnosis of celiac disease ,however, they may produce in way or another during the course of T1DM . The present study aimed at investigation the presence of HLA-DQ alleles and evolution of the two auto-antibodies which are mentioned above .Two groups were founded (each two NO =30) of celiac disease and T1DM patient compared to third group of apparently healthy control group of 20 individuals. The Real-time PCR was used for the HLA-genotype and ELISA was also used to estimate the auto antibodies quantitatively in all of members of the study . The age of the patients were ranged from (4.3-18) year in T1DM group and from (1-45) years in celiac disease group. The median calculation of Anti-gliadin IgA (U\ml) were ;1.6 ,6.15 and 27.4 among healthy group ,T1DM, and CD patient respectively ,with significant difference (P 0.001)in the differentiation of the three groups from each other. An interesting Receiver operating characteristic values (area under the curve AUC 0.949-1.000) for this auto-antibodies as a perfect test in this aspect . In the same context , the IgG , class of this auto-antibody occurred in median concentration of 3.05, 5.7 , and 21.85 among the three groups ,respectively . It significantly differed among this group and as compared

to each other's, except of T1DM versus control significant high ROC values were reveled distinguishing these groups creating a good diagnostic tool excluding the IgG class in the predication T1DM patient differentiating them from healthy control.For anti-tissue transglutamenase assays ,Both IgA and IgG were provided with significant differentiation tools when compared among the three studied groups both classes provided had high ROC (0.947-1.000), almost perfect test. On the subject of genotyping ofHLA-alleles,DQA1*0501,DQB1*0201,and DQB1*0302 were found to be differed in their presence significantly among CD patients that creating high etiological fraction of 0.931 , 0.761 , and 0.761 ,respectively with increased odd ratio(OR)whereas the allele DQA1*0310 have had no such role. A similar significant high risk of having T1DM have been shown when the first three mentioned alleles occurred in patients compared to healthy control (EF=0.897 for each allele ), and high OR .Again the DQA1*0310 hasn't played such role. None of these alleles seems to prefer having T1DM or having CD the frequencies of the four alleles were non-significantly differed between two patient group .we have gone far to study the validity topic measured sensitivity ,specificity ,accuracy for each parameter ,moreover the clinical relevant of these parameters have also been estimated using positive predictive values (PPV)and negative predictive values (NPV).The highest validity parameters of anti-glidine of IgA and IgG class occurred at cut-off values of 0.5 and 6.95 ,respectively ,where used to predict CD ,whereas, The anti-tissue transglatamenase IgA, IgG cut off were 11.7 and 2.9 serving. The same purpose. For T1DM patient the optimum cut off values were 3.75 , 6.55 , 2.85 and 2.85 for respective auto-antibodies above predicting this disease differentiate it from healthy. To distinguish CD from T1DM patient the optimum cut off values that got higher validity parameters were 18.7 , 16.6 , 18.1, and 11.75 respectively. Furthermore interesting

result obtained when the HLA-genotyping has been validated 100% specify and moderate to high sensitivity 100% PPV and NPV have been gotten for DQA1*0501, DQB10201, and DQB1*0302 but not for DQA1*0310. These values were obtained in the prediction of each of CD and T1DM differentiating them from healthy control, but not in differentiation of CD from T1DM. From the result of this study, it was concluded that the overlapping auto-antibodies profile CD and T1DM are a common predisposing factor , HLA-DQ2 and DQ8 among Iraqi patients.