

Summary

The present study was carried out in Labs of the Marsh Research Center, Genetic Disease Center, and Al-Hussein Teaching Hospital from April 2022 to February 2023, aimed to investigate the genetic polymorphism of the Haptoglobin (Hp) gene in patients with sickle cell anemia, hepatitis C, and sickle cell anemia with hepatitis C. A total of 130 participants were classified, (40) patients with sickle cell anemia, (40) patients with hepatitis C, (10) sickle cell patients with hepatitis C, and (40) control group.

DNA was isolated and polymerase chain reaction (PCR) performed using genotype-specific primers for the three regions of the haptoglobin gene, and genotypes were determined after electrophoresis on agarose gels and determining the amplified fraction of each allele. After obtaining the sequencing results of the haptoglobin gene and for the studied samples and for the three plots Hp2, Hp 1S and Hp 1F, Sequences for all three segments were registered in the NCBI Genome Bank for the first time locally and some were given independent accession numbers, and it will be considered a database for any future researcher working. Using the SPSS program, the expected percentages for the three .on the Hp genotypes in Iraq haptoglobin (HP) genotypes were calculated for, sickle cell patients, hepatitis C patients, patients with both sickle cell and hepatitis C and healthy controls, respectively: in Sickle cell Patient Hp1-1(0.13), Hp2-2(0.55), Hp2-1(0.32), Hepatitis C Patient Hp1-1(0.13), Hp2-2(0.63), Hp2-1(0.24), Sickle cell with Hepatitis C Patient Hp1-1(0.20), 2(0.60), Hp2-1(0.20), and .(Control group Hp1-1 (0.30), Hp2-2 (0.50), Hp2-1 (0.20

Statistical analysis revealed no distinguishing features between patients and Control group in the distribution patterns, and the Hp2-2 phenotype was the most prevalent among all .groups

The statistical analysis also indicated that the Hp2-2 genotype has a high incidence of sickle cell anemia (55%), in hepatitis C (63%) and sickle cell anemia with hepatitis C patients (60%) .compared with other Hp genotype whoever

The results of the current study suggest a link between specific haptoglobin (Hp) genotypes and disease susceptibility. Whereas the T and TT genotype of Hp-2 643 T>A appeared to be more common in both sickle cell anemia and hepatitis C, the GG genotype of Hp-1S (442G>C, 561 G>C) was most common in all study groups. As for the Hp-1F 867 G> A gene, the G and GG genotypes were more prominent in sickle cell diseases and hepatitis C, which indicates .that these genotypes may confer susceptibility to these diseases in Iraqi families

IL8 concentration was increased in all patient groups compared to the control group. According to the haptoglobin genotype the Hp2-2 showed a higher concentration of addition, all patient groups showed lower concentrations of .IL8 in all patient groups Haptoglobin serum in comparison to the control group, According to the types of haptoglobin, in hepatitis C patients, the Hp1-1 genotype had a significantly lower concentration of haptoglobin in this serum compared to the Hp2-1 and Hp2-2 genotypes, while there were no statistically significant differences between all types of haptoglobin in .the control group and other patient groups

The concentration of alkaline phosphatase, aspartate aminotransferase, and alanine transaminase were increased in all patient groups compared to the control group, and According to the types of haptoglobin the Hp2-2 genotype showed higher alkaline phosphatase and alanine transaminase concentration in all patient groups compared with Hp1-1 and Hp2-1, while no significant change in the aspartate aminotransferase level in any An analysis of essential trace minerals, the findings suggest . type of haptoglobin in all groups that patients in the current study have high levels of Iron and Copper, and Low levels of Zinc, compared to the control group, while serum Chromium concentration does not differ The current results did not show a statistically .significantly between the two groups significant relationship between haptoglobin polymorphisms and levels of Iron, Copper, and Chromium in all participating groups, while the concentration of Zinc differed between .haptoglobin types