وزارة التعليم العالي والبحث العلمي
جامعة المثنى
كلية العلوم

دراسة مرضية فسلجية جزيئية لمرضى الثلاسيميا نوع بيتا في محافظة المثنى – العراق

رسالة مقدمة إلى

مجلس كلية العلوم ـ جامعة المثنى كجزء من متطلبات نيل شهادة الماجستير في علوم الحياة / فسلجة حيوان.

من قبل

هناء علي عزيز

بكالوريوس علوم حياة / جامعة الكوفة 2005

بإشراف

الاستاذ الدكتور

خالد كاطع الفرطوسي

تشرين الاول
2014 م

ذو الحجة
1435 هـ

Summary

The aim of this study was detected of hematological, biochemical changes and detection of mutations which cause β- thalassemia by ARMS- PCR assay for the first time in Al-Muthanna province – Iraq, during the period from October-2013 up to March–2014.

One hundred patients with thalassemia were examined in the present study as well as fifty apparently healthy people were selected as the control, their ages ranged between 2-20 years old, these patients were registered as thalassemic patients in "Thalassemia Unit" at "Feminine and Children Hospital" in Al-Muthanna province.The patients of β-thalassemia were examined by using hematological and biochemical tests.

The study recorded non significant differences at (P>0.05) in the infection percentage of male (56%) and female (44%) with thalassemia. The study showed a significant increase at (P<0.05) in the infection percentage of thalassemia in age groups, location , relative degree , blood group and infected viral hepatitis.

The study indicated a significant decrease at (P<0.05) in red blood cells, hemoglobin and packed cell volume in all age groups compared with control groups. Also, the study showed a significant decrease at (P<0.05) in red blood cells of thalassemia between all age groups while it showed non significant differences at (P>0.05) in hemoglobin and packed cell volume of thalassemia between all age groups. The study showed a significant increase at (p<0.05) in platelets in age groups (1-5) years which was (356238± 24244)U/L and (15-20) years was (278311± 17640) U/L as compared with control groups (274000±84481) U/L and (216667± 70384)U/L respectively. Also, the study recorded a significant increase at (P<0.05) in platelets of thalassemia in age group (1-5) years compared with other age groups. The study indicated a significant decrease at (P<0.05) in total

white blood cells in all age groups as compared with control groups. Additionally, it showed a significant differences at ($P<0.05$) in total white blood cells of thalassemia between age groups .The study recorded a significant decrease at ($P<0.05$) in neutrophile in all age groups as compared with control groups . Moreover , it showed non significant differences at ($P>0.05$) in netrophile of thalassemia between all age groups. The study showed a significant decrease at ($P<0.05$) in basophile in age groups (1-5) years , (5-10) years and (15-20) years as compared with control groups. Furthermore, it showed a significant increase at ($P<0.05$) in basophile of thalassemia in age group (10-15) years as compared with other age groups. The study recorded a significant increase at ($P<0.05$) in eosinophile in all age groups as compared with control groups. Also, it showed non significant differences at ($P>0.05$) in eosinophile of thalassemia between all age groups. The study showed a significant increased at ($P<0.05$) in lymphocyte in age groups (1-5) years , (5-10) years and (10-15) years as compared with control groups. Also, it showed non significant differences at ($P>0.05$) in lymphocyte of thalassemia between all age groups. The study indicated a significant decrease at ($P<0.05$) in monocyte in age groups (5-10) years (1.094 ± 0.093) % and (10-15) years (0.483 ± 0.093) % as compared with control groups (5.166 ± 1.359) and (5.824 ± 1.555) respectively .Also, it showed a significant increase at ($P<0.05$) in monocyte of thalassemia between age groups.

The study indicated a significant decrease at ($P<0.05$) in urea level in age groups(1-5) years (23.63 ± 5.88) mg/dl and (5-10) years (26.86 ± 6.45) mg/dl as compared with control group (35.37 ± 7.90) mg/dl and (33.83 ± 5.26) mg/dl. Inaddition, it recorded non significant differences ($P>0.05$) in urea of thalassemia between all age groups. The study showed a significant decrease at ($P<0.05$) in creatinine level in age groups (1-5) years, (10-15) years and (15-20) years as compared with

control group. Also, it recorded non significant differences (P>0.05) in creatinine of thalassemia between all age groups. The study showed a significant increase at (P<0.05) in Alanine aminotransferase , bilirubin in all age groups as compared with control groups. Also, the study recorded non significant differences at (P>0.05) in Alanine aminotransferase of thalassemia between all age groups, while it showed significant increase (P <0.05) in bilirubin of thalassemia in age group (15-20) years as compared with age groups. The study indicated significant increase at (P<0.05) in Aspartate aminotransferase in age group (1-5) years (23.71$\pm$7.54)U/L as compared with control group (12.33$\pm$3.51) U/L . Also, it recorded non significan differences at (P>0.05) in Aspartate aminotransferase of thalassemia between all age groups. The study recorded a significant increase at (P<0.05) in concentration of ferritin in all age groups as compared with control groups. Also, it showed significant increase at (P <0.05) in ferritin of thalassemia in age group (15-20) years as compared with other age groups. The study showed non significant differences at (P>0.05) in concentration of uric acid and albumin in all age groups as compared with control groups. Also, it recorded non significant differences at (P>0.05) in uric acid and albumin of thalassemia between all age groups. The study indicated a significant decrease at (P<0.05) in total protein in age groups (1-5) years, (5-10) years and (10-15) years as compared with control groups. Also, it recorded non significant differences at (P>0.05) in total protein of thalassemia between all age groups. The study showed a significant decrease at (P<0.05) in calcium concentration in age groups (1-5) years , (10-15) years and (15-20) years as compared with control groups. Also, it recorded non significant differences at (P>0.05) in calcium concentration of thalassemia between all age groups.

The present study diagnosed three types of mutation in β-thalassemic patients by ARMS- PCR assay (IVS- I-5, Codon 8\9 , Codon15), the highest

percent of β-thalassemic patients mutation is IVS-I-5 (53.8 %) followed by Codon 8\9 and Codon15 with percentage (27.6%) and (18.4 %) respectively.