Oxidative Stress and Zinc Status in Children with β-**Thalassemia Major and its Relation to Growth Retardation**

Thesis submitted for the fulfillment of Ph.D.
In Medical Childhood Studies
(Child Health and Nutrition)

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اجهاد التأكسد و حالة الزنك في الأطفال مرضى أنيميا البحر المتوسط وعلاقتهما بتأخر النمو

رسالة مقدمة للحصول على
درجة دكتوراه الفلسفة في دراسات الطفولة الطبية
(صحة و تغذية الطفل)

مقدمة من الطبيبة

نرمين جمال الدين عبد الحميد عنتر

بكالوريوس الطب و الجراحة
ماجستير طب الأطفال

تحت اشراف

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أستاذ الطب الوقائى والوبائيات
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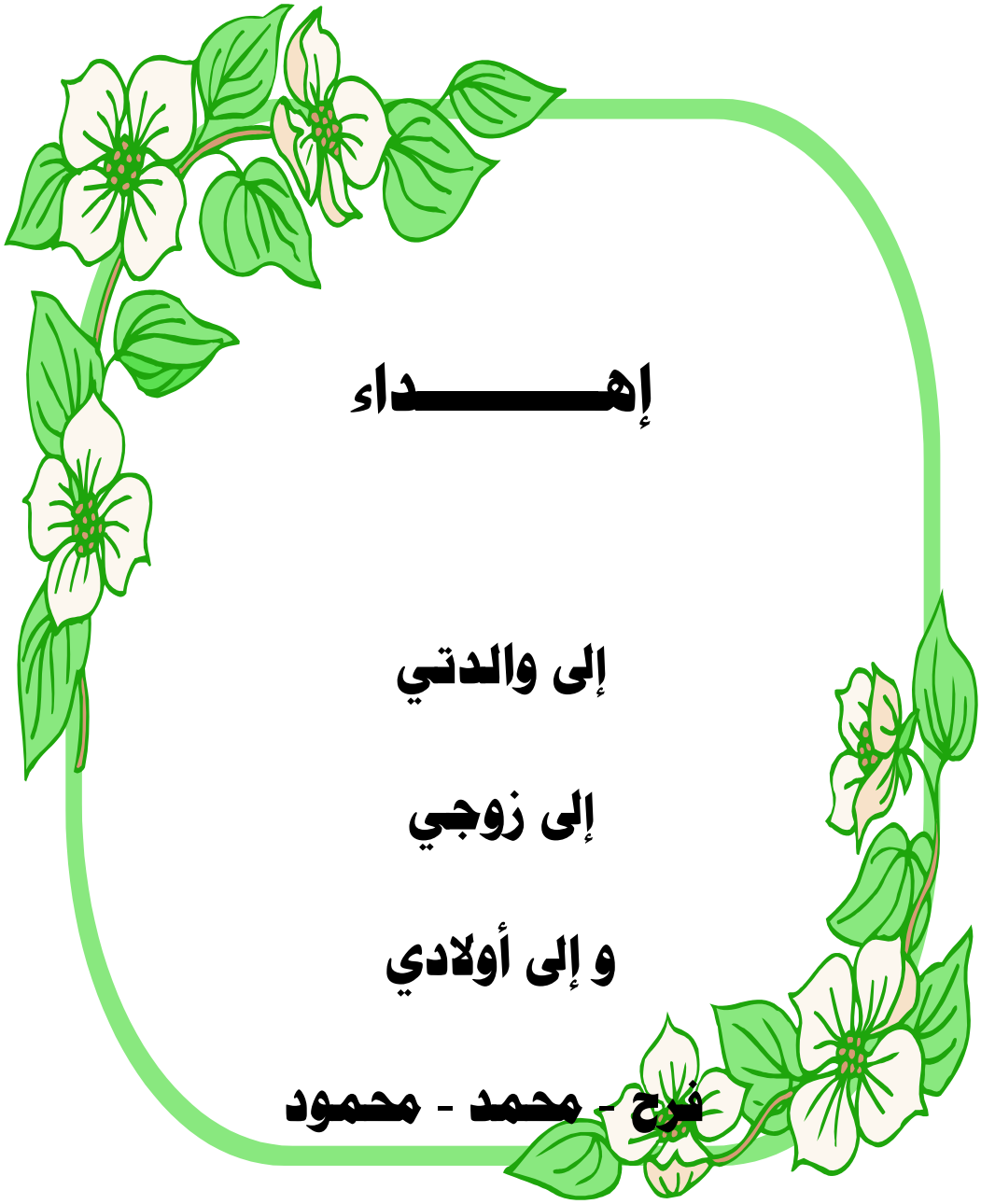
2014

بسم الله الرحمن الرحيم

وَقُلْ رَبِّ زِدْنِي عِلْمًا

صدق الله العظيم

الآية "١١٤" سورة طه



إهـــــــــداء

إلى والدتي

إلى زوجي

و إلى أولادي

فرح - محمد - محمود

شكـــــر وتقـديـــر

إلى أستاذي الفاضل

الأستاذ الدكتور/ إلهامي عبد العزيز إمام

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الذي شرفني بإشرافه العلمي المتميز

الذي كان له عظيم الأثر في إنجاز هذا العمل

إلى أستاذتي الفاضلة

الأستاذة الدكتورة/ هاله إبراهيم عوض الله

مدرس بقسم العلوم الطبية

معهد الدراسات والبحوث البيئية - جامعة عين شمس

التي منحتني الكثير من وقتها في التوجيه والإشراف على الرسالة جزاها الله عني وعن أجيال الدارسين الذين تعلموا منها الكثير خير الجزاء

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ABSTRACT

Aim of the present study was to assess oxidative stress and zinc status and its relation to growth retardation in β-thalassemia major patients.

Subjects and methods: Fifty β-thalassemia major patients receiving regular blood transfusion and fifty healthy individuals as a control group were evaluated. Thorough medical history, thorough medical examination and auxological assessment were done. Blood samples for measurement of haemoglobin concentration, serum ferritin, serum ALT, serum zinc and serum Malondialdehyde were obtained.

Results: Showed a significant decrease in serum zinc and a significant increase in serum Malondialdehyde compared to control subjects with a significant negative correlation between both parameters. 50% of patients were below 3rd height centile

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(short stature) while 0% of controls subjects were below 3rd height percentile. There was a significant positive correlation between serum zinc level and the height percentile and a significant negative correlation between serum Malondi-aldehyde and height percentile among β-thalassemia major patients.

Conclusion: These data support the assumptions that zinc deficiency meight lead to increase in oxidative stress and growth impairment. We suggest zinc administration to reduce the oxidative damage and the related complications in β-thalassemia major patients.

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