شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

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بالرسالة صفحات لم ترد بالاصل

ZINC LEVELS IN SHORT STATURE

Thesis

Submitted to the Faculty of Medicine,
University of Alexandria, in partial fulfilment
of the degree of

MASTER OF INTERNAL MEDICINE

By

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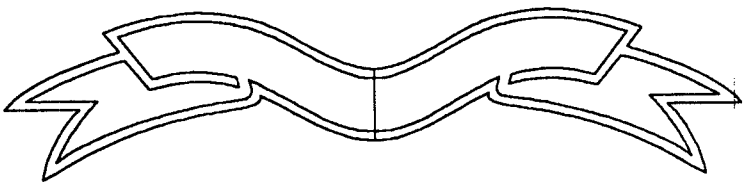
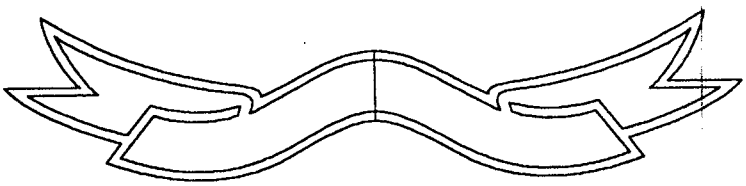


Introduction



INTRODUCTION

Growth:

Growth of tissues is the result of an increased cell number or cell size, or both.

It's well established that growth hormone stimulates growth of the various tissues by increasing the number of cells rather than by increasing cell size.[1]

In vivo this growth hormone effect on tissue growth could be the result of differentiation of a precursor cell or proliferation of a differentiating cell or both. Analysis of tissue growth in vivo does not allow a distinction between these two possibilities.

Intrauterine growth retardation:

Traditionally, low birth weight has been associated with prematurity. Only in relatively recent years it has been accepted that low birth weight can also result from insufficient prenatal growth and that preterm infants with appropriate weight and infants which are small for their gestational age differ profoundly from the clinical point of view.[2]

Cut-off points for the definition of infants with intrauterine growth retardation (IUGR) differ widely: they include the third, the fifth birth weight percentile, 2 SD below the mean or the tenth percentile.[3]

A reasonable definition for IUGR is:

"These are children whose birth lengths are below the tenth percentile and whose birth weight are equal or below the tenth percentile according to sex and ethenic background".

Criteria have been proposed to differentiate between infants with limited growth potential and infants who are really growth retarded. The ponderal index (PI),[4] evaluates the ratio of soft tissue mass to skeletal frame and is determined in the neonate by the equation:

$$PI = \frac{\text{Weight (gm)}}{\text{Length (cm)}} \times 100$$

Forms of IUGR:

1. Proportionate (Symmetric) growth retardation, birth length, weight and head circumference are all at the same percentile on growth charts. The PI is within the limits defined as normal

(2.2-3.0). The impairment of growth begins early in gestation (fetuses with chromosomal anomalies, genetic dwarfing syndromes and intrauterine infections, familial smallness).

2. Disproportionate (asymmetric) growth retardation. In these infants the birth weight is decreased, but length and head circumference are on a higher percentile on growth charts. The PI is usually below the limits defined as normal. Negative influences interfering with normal intrauterine growth have been involved only after the 30^{th} week of gestation (infants born to mothers with hypertension or toxemia of pregnancy).

Table (I): Factors interfering with normal fetal growth and development:

- **Intrinsic fetal anomalies.**
  - ***Chromosomal***:
    - Trisomies 13, 18, 21.
    - Ullrich -Turner syndrome and variants.
  - ***Primary growth failure syndrome***:
    - Silver-Russel syndrome.
    - Seckle syndrome.
    - Brachmann-de-Lange syndrome.[5]
    - Bloom syndrome.
    - Fanconi Pancytopenia syndrome.
    - Osteochondrodysplasias.
  - ***Congenital infections***:
    - Rubella.
    - Cytomegaly.
    - Toxoplasmosis.
  - ***Congenital anomalies***:
    - Bilateral renal agenesis.
    - Defects of the renal axis.
    - Congenital heart disease.
    - Malformations of GI tract.
- **Abnormalities of the placenta.**
  - Abnormal implantation.
  - Vascular anomalies, e.g. haemangiomas, etc.
  - Tumors of the placenta.
  - Progressive vascular disease.
- **Maternal disorders**:
  - ***Cardiovascular***: Hypertension, cardiac disease, pre-eclampsia, severe D.M.
  - Maternal phenyleketonuria.[6]
  - Chronic respiratory disease.
  - Chronic renal diseases.
  - Collagen diseases.
  - Anaemias.
  - Uterine malformations.
  - ***Drugs***: alcohol, tobacco, narcotics, therapeutic drugs.
- **Environmental factors**:
  - Maternal malnutrition.
  - High altitude.
  - Occupational hazards.
  - Irradiation.

The role of enviroment in growth :

It is caused by variations in life style and differences in nutritional history, history of diseases, recent health status, socioeconomic conditions, altitude and climate.

It was found that a child who is failing to thrive lags,first in weight, then in length or height, and finally in head growth.[7] These extrinsic factors involved in time regulation of the pattern of growth include nutrition and the effect of enviroment.[8]

♂ Climate:

Body size, shape and composition may show characteristics of adaptive value to extreme enviroments.

Children living in tropic areas are subjected to some infections that do not exist in temperate climate while more widespread infections may have their effects modified by climate or nutrition.