Down's syndrome a new maternal Iraqi risk.

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Abstract

Background: The occurrence of Down's syndrome is usually associated with advancing maternal age and increased parity.

Objectives: This study explores the risk factor associated with the occurrence of Down's syndrome for different age groups.

Methods: Blood sample from suspected Down's syndrome babies were prepared for chromosomal preparation. A hundred and fifty four blood samples from patients suspected of being Down's syndrome baby came with variable features which raise the suspicion of being Down's.

Results: The study groups were 65 male and 89 female. Seventy seven (77) were the first member of the family, 68 were born for young mothers with an age between 15-34 years. Only nine were born for old mothers aged between 35-43 years. Seventy three were members of the family other than the first. Twenty six were born for mothers aged between 35-43 years, while the other 47 were born for mothers aged between 15-34 years. Chromosomal study for 4 cases revealed normal chromosomal findings.

Conclusion: This study may show that young Iraqi mothers (under 35 year) carry high risk of having down's baby both in multi as well as primigravida.

Key words: Down's syndrome, trisomy, primigravida, multigravida, Chromosome.

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Introduction

Down's syndrome was diagnosed by Lejeune *et. al* [1] in 1959 and since then it continued to be the first and the most common of the clinical chromosomal syndromes known in human.

A lot of studies and researches [2] explore the nature of the disease, its clinical feature, the various types of the disease and the risk factors. Most of the studies explore high risk group with advancing maternal age [3-5] and increase parity as well as with very young age mothers below 18In this study we explore the occurrence of the large number of Down's syndrome for young mothers (mostly primigravida as well as multigravida young mother.

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Patients and methods

A total of one hundred and fifty four baby aged 5 days- 5 years were referred from different pediatricians and pediatric hospitals to Dr. M .Tawfik private cytogenetic lab in Baghdad for the period 1997 -2003.

Full clinical examination was carried out for every part to explore the features raise the suspicion of being Down's patient such as: Depressed nasal bridge, Epicanthic fold, Slanting eyes, Simian's line, Separated big toe, Flat face, High arched palate, Congenital heart disease, Protruded tongue, Hypotonic muscle and Broad hand.

The maternal age of every patient at the time of her pregnancy for the affected baby was recorded, as well as the gravity whether she was primi- or multigravida.

The procedure of chromosomal analysis and Down's syndrome diagnosis was done as follow: 2ml of blood were aspirated from each patient aseptically using heparin coated

syringe. then each sample were inoculated with 5 ml RPMI culture media to which 0.1 PHA was added to stimulate the division of the cells for 72 hour at 37 C˚ (the whole cultivation time) . At hour 70 (before 2 hours of the end of the cultivation time) 0.5mlcolcmid solution was added to stop cell division at metaphase stage.

Hypotonic solution (KCL) 0.075 M at 37 C˚ was added to swell the cells which should be left for 20 minutes Then 10 ml of freshly prepared fixative material was added 3 Methanol 1Glacial acetic acid for 10 minutes (which should be repeated for 3 times) until we reach a clear colorless cell suspension After each step of fixation centrifugation was done to sediment the cells at 1000 rpm for 10 minutes at room temperature. Then, the cell suspension was used for slide preparation and for each sample 4 slides were made one of them was used for solid stain which is used for visualization and counting of chromosomes to detect the number of chromosomes (numerical method only).

The rest of the slides were prepared for the standard Gimsa_trypsin G banding to detect the number and structure of the chromosomes (numerical and structural method). The whole procedure was done by Dr. M. Tawfik.

Results

A total of one hundred and fifty four Iraqi babies came with variable features which raise the suspicion of being Down's. Chromosomal study were performed for all the cases, Trisomy 21 was the result of 150 babies while only 4 babies gave normal 46 chromosomal karyotype (Figure 1). 65 were males and 89 were females (Figure 2). From the one hundred fifty patients 77 were the first member of the family while 73 were members of the family other than first (Figure 3) .Sixty eight of those who were the first member of the family were born for younger mothers with an age between 15-34, only 9 were born for old mothers with an age between 35-43years (Figure 4). The patients who were other than first in the family can be divided into: 47 were born for young aged mothers between ages 15-34 years, while the rest 26 were born for old age mothers 35-43 years (Figure 5).

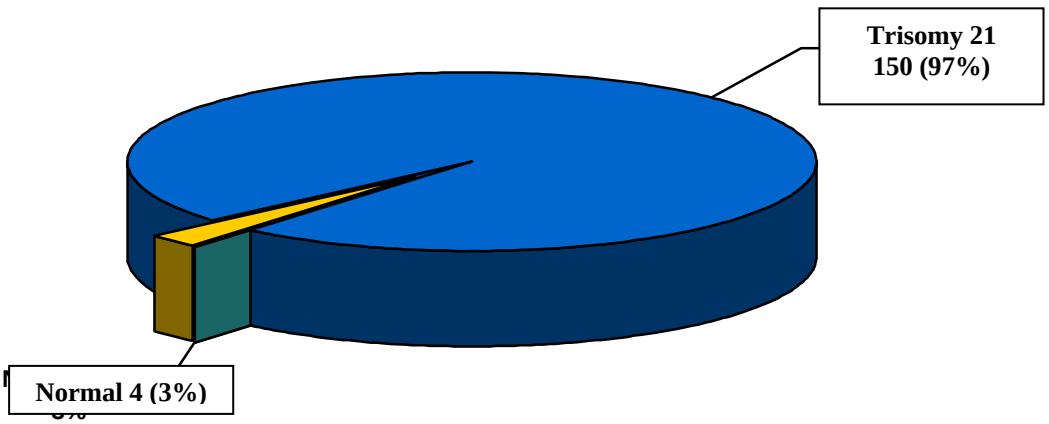

Figure 1: The normal and abnormal distribution of the children included in this study.

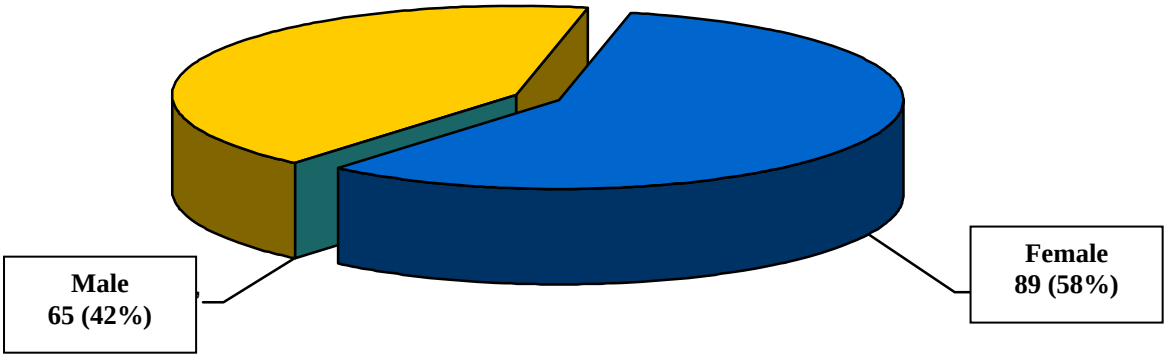

Figure2: The sex distribution of the children included in this study.

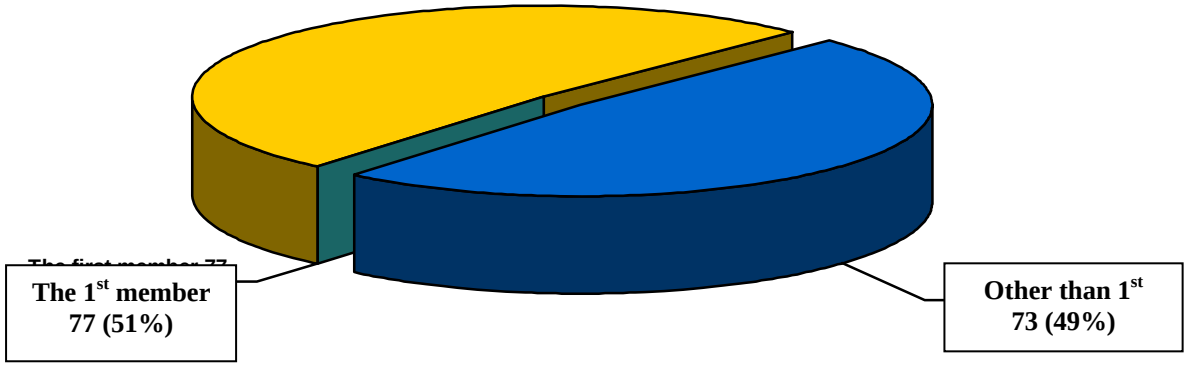

Figure3: The order in family of the Down's patient included in this study.

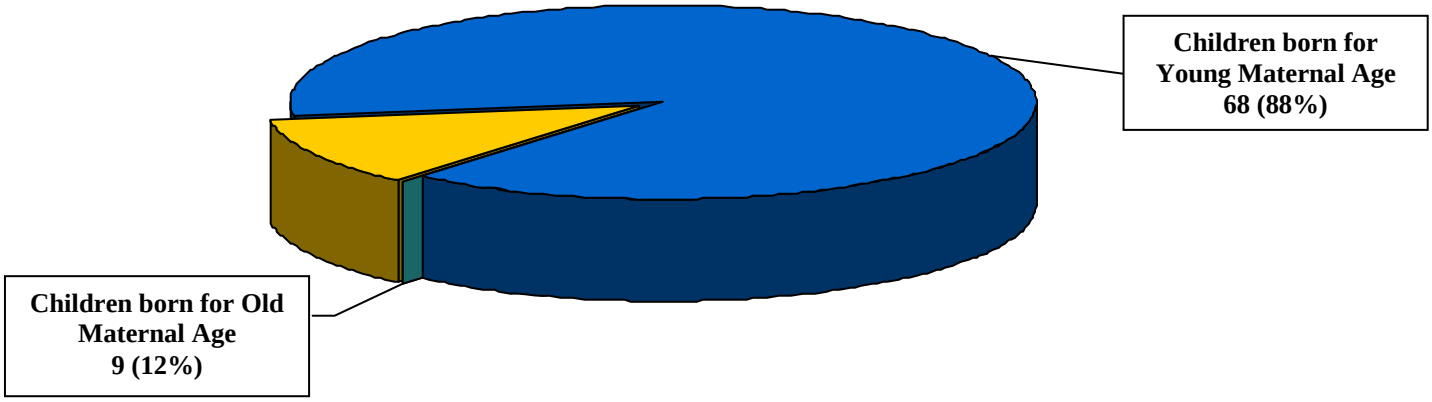

Figure4: The distribution of the patients who were the first member of the family and the maternal age included in this study.

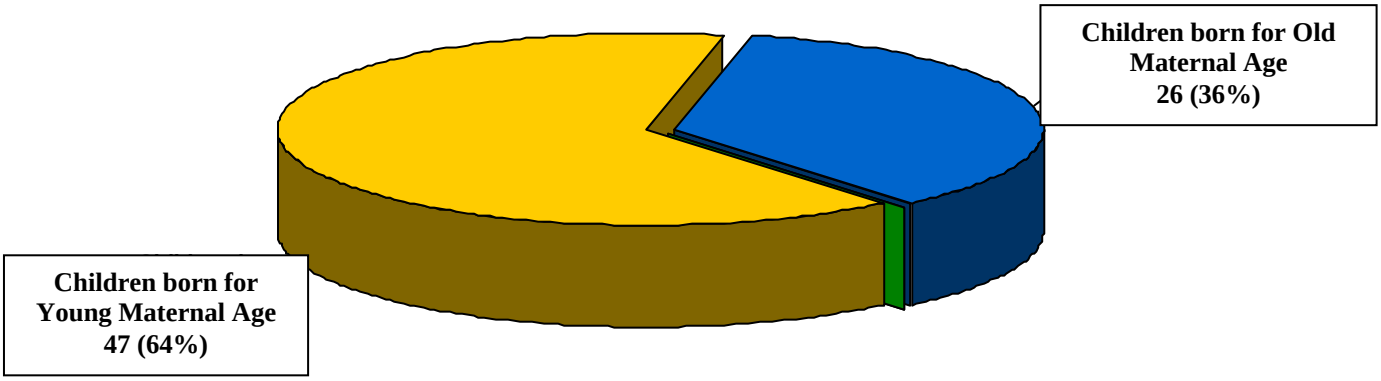

Figure5: The distribution of the patients who were other than first in the family and the maternal age included in this study.

Table 1showing the age and sex distribution of the children in which the females were more than the males and mostly at the age of 1month - 11month.

Table1: The age &sex distribution of the children included in this study

Age	Male	Female	Total
1day-6day	10	14	24
7day-29day	22	20	42
1month-11month	15	32	47
1year-5year	18	23	41
Total	65	89	154

Table 2 showing the age distribution of the young mothers (under 35) in relation to the number of the Down's baby and their order in family in which we obtain that the most affected age was between 25-29 years old which were (35 years) woman from a total of 115 (the young mothers only), also this table showing that the first member of the family were more than the other than first (primi were mostly affected). In general the young primi women were mostly affected.

Table2: The age distribution of the young maternal age in relation to the number of the Down's baby &their order in family included in this study.

Maternal age	Number of Down's	Order in family	
		First	Other than first
15-19	20	20	0
20-24	33	14	19
25-29	35	22	13
30-34	27	12	15
Total	115	68	47

Table 3 showing the age distribution of the old mothers (above 35 years) in relation to the number of the Down's baby and their order in family. In which we obtain that the old mothers were less than the young woman from a total of 150, also this table showing that the old multigravida are more than the old primi mothers.

Table3: The age distribution of the old maternal age in relation to the number of the Down's baby &their order in family included in this study.

Maternal age	Number of Down's	Order in family	
		First	Other than first
35-39	14	5	9
40-44	21	4	17
Total	35	9	26

Discussion

Down's syndrome as a disease can affect any pregnancy. The disease increases in both extremes of age, it is more for young mothers below 18 years old and those over 35 [(2)]. As it is documented in most studies all over the world [(6)]. All the patients were Down's of trisomy type and this indicate that young mothers are at more risk of having abnormal baby in our country than outside. We run our risk which differs from others[(7)], both young primi and multigravida give birth to down's baby.

The data obtained from this study shows that young Iraqi mothers (under 35 year) carry high risk of having Down's baby both in multi as well as primigravida. This reflects that Iraqi people have exposed to different risks of not only Down's but could be other diseases due to the exposure during the last 30 years because of wars and sanction.

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