ENDOCRINE COMPLICATIONS IN BETA-THALASSAEMIA MAJOR CHILDREN

Mirela Iancu[1], Alice Albu[1,2]
1.Elias University Clinical Hospital, Bucharest, Romania
2.Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

INTRODUCTION

Beta-thalassaemia major is an inherited anemia which requires chronic transfusions and is frequently associated with endocrine dysfunctions secondary to iron overload.

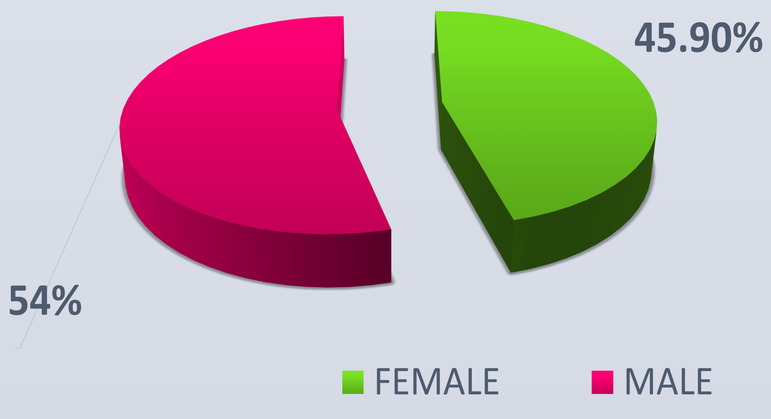
The aim of this study was to identify the prevalence of various endocrine complications in beta-thalassaemia major children over a period of 14 years and the factors associated with them.

MATERIALS AND METHODS

61 children with BTM (mean age 12.23 years) referred to the Endocrinology Department of Elias University Clinical Hospital from February 2004 to March 2017 were evaluated and data related to chelation and transfusion treatment were collected.

RESULTS

From 61 children, 33 (54.1%) were girls and 28 (45.9 %) were boys. Seventeen (27.9 %) had short stature. Eight of the patients (13.1%) were diagnosed with hypothyroidism. Hypogonadotropic hypogonadism was the diagnosis in 12 children (34.3 %) aged 12 years and more. The most prevalent type of hypogonadism was delayed puberty, documented in 6 (17.1 %) children. Ferritin levels were significantly higher in patients with short stature compared with those with normal stature (2457.67 ng/ml vs 1296.47 ng/ml, p=0.001). However, no association between serum ferritin concentration and the presence of hypothyroidism or hypogonadism was found. The presence of either hepatitis B or C was not associated with short stature, hypogonadism or hypothyroidism. Children with hypogonadism started the transfusion treatment at a younger age compared with eugonadic ones (8 months vs 33 months, p=0.05).



TRANSFUSION AND CHELATION PARAMETERS

	Minimum	Maximum	Mean	Std. Deviation
Age(years)	3	18	12.23	4.03
Age of start of transfusion (months)	2	96	20.90	21.40
Transfusion U/year	12	90	23.84	12.60
Age of chelating (months)	3	126	45.28	30.39
Feritin(ng/dl)	200	4776	1575.16	1101.68
Medium Hb (mg/dl)	5.50	11.62	8.95	1.26

COMPLICATONS ASSOCIATED WITH BTM

	Frequency	Percent
splenectomy	19	31.1
Hepatitis B	4	6.6
Hepatitis C	16	26.2
Hepatitis B/C	18	29.5

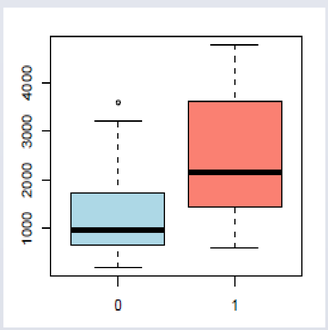
	Frequency	Percent
Short stature	17	27.9
Hypothyroidism	8	14.3

35 children were >=12 years old

	Frequency	Percent
Delayed puberty	6	17.1
Arrested puberty	4	11.4
Hypogonadism after complete sexual maturation	1	2.9
Hypogonadysm (either type)	12	34.3

Short stature is positively associated with higher concentrations of ferritin

	Short stature (mean +/- SD)		Significance
	YES	NO	
Age of transfusion (months)	18.83+/-15.438	21.76+/-23.629	P=0.696
Transfusion U/year	20.93+/-6.120	24.81+/-14.051	P=0.323
Age of chelation (months)	52+/-21.424	43.50+/-32.389	P=0.462
Ferritin (ng/dl)	2457.67+/-1336.154	1296.47+/-862.679	P=0.001
mediumHb (mg/dl)	8.5993+/-1.40626	9.0917+/-1.19781	P=0.220



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Short stature is positively associated with the presence of arrested puberty

	Significance
Splenectomy	p=0.089
hepatitis	P=0.062
hypothyroidism	**p=0.637**
Delayed puberty	p=0.151
Arrested puberty	p=0.005
Hypogonadism after complete sexual maturation	p=0.077
Hypogonadotropic hypogonadism	p=0.004

CONCLUSIONS

Endocrine complications occur with a high prevalence in Romanian beta-thalassaemia children, hypogonadism being the most frequent. High levels of serum ferritin were associated with the presence of short stature. Transfusion treatment started at a younger age was more prevalent in children with hypogonadotropic hypogonadism.