RESULTS

Our results are presented and illustrated in the following 11 tables and 9 figures.

Table (1): Sex distribution among the study groups.

	Males	Females	P
Thalassemia (100)	62 (62%)	38 (38%)	0.77 **(NS)**
Control (100)	60 (60%)	40 (40%)	

Test used is chi-square test. NS = Non-significant.

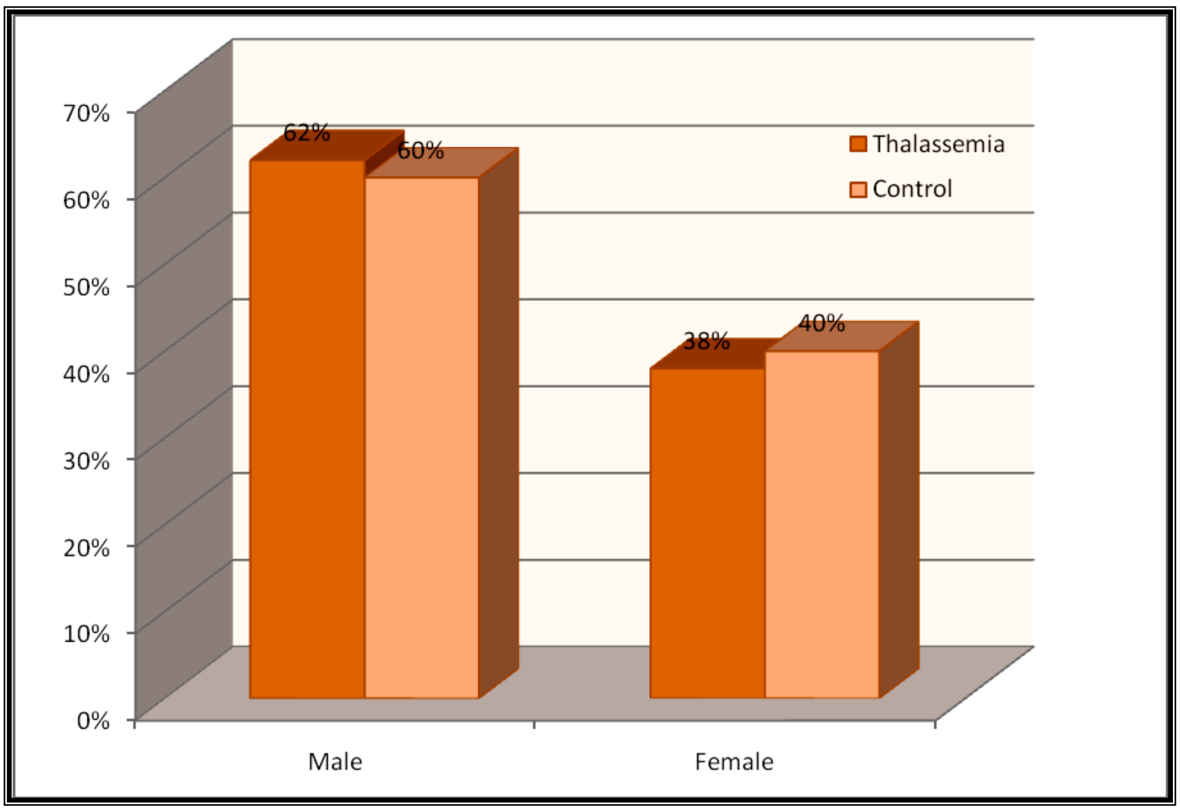

Figure (1): Sex distribution among the study groups.

Table (2): Age distribution among the study groups.

	Thalassemia		Control		T	P
	Mean ± SD		Mean ± SD			
Age (years)	10.37	2.3	10.8	2.9	1.16	0.24 (NS)

Test used is independent sample test. NS = Non-significant.

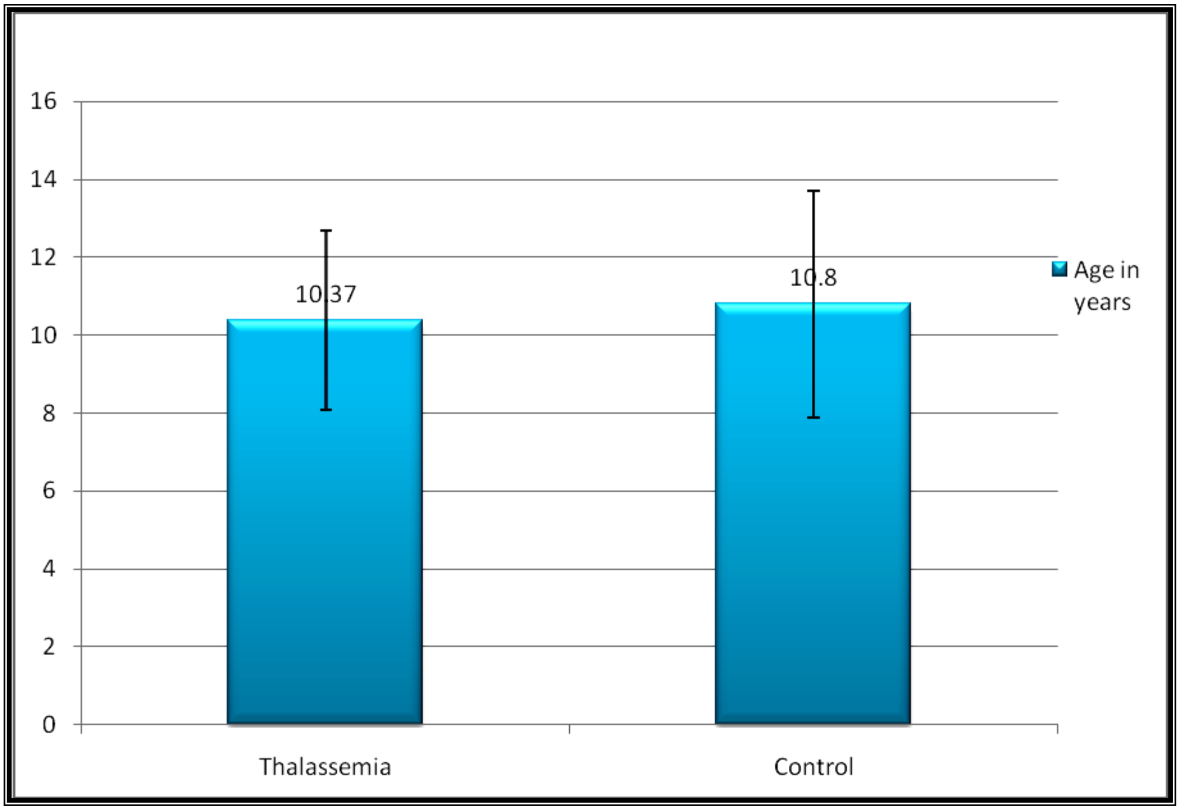

Figure (2): Age distribution among the study groups.

Tables (1) & (2) as well as figures (1) & (2) show that our studied groups (thalassemia and control) are age and sex matched.

Table (3): Frequency of β-thalassemia major clinical data among our patients (**N$^{\underline{O}}$** = 100):

Clinical data		**N$^{\underline{O}}$.**	**%**
Age of diagnosis:	1$^{\underline{st}}$ year	30	30%
	2$^{\underline{nd}}$ year	53	53%
	After the 2$^{\underline{nd}}$ year	17	17%
Pallor		81	81%
Jaundice		73	73%
Growth retardation		52	52%
Splenomegaly (in non-splenectomised patients)		31(out of 56)	55.3%
Mongoloid features		59	59%
Blood transfusion		100	100%
Iron chelating therapy		100	100%

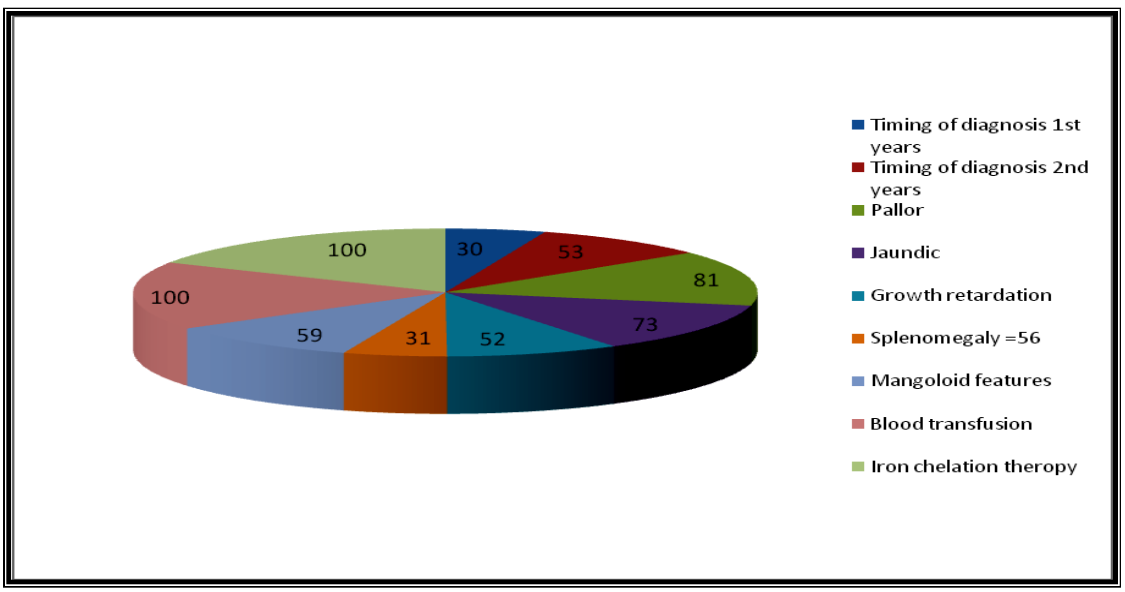

Figure (3): Percentage distribution of the clinical data among our patients.

Table (3) and figure (3) show that the commonest clinical manifestation of β-thalassemia major was pallor (81%) followed by, jaundice (73%), mongoloid features (59%) splenomegaly (55.3% of 56 non-splenectomised patients) and growth retardation (52%). The disease was diagnosed during the first year of life in 30% of our patients, during the second year of life in 53% of them and later in life in the remaining 17%. All our patients have received blood transfusion and iron chelating agents.

Table (4): Incidence of encapsulated bacterial carriers among β-thalassemia major and control subjects:

	Thalassemia	Control	P
Strept. pneumoniae	18%	32%	0.045 **(S)**
β-hemolytic Streptococci	15%	29%	0.017 **(S)**
Neisseria meningitidis	0	6%	0.04 **(S)**

Test used is chi-square test. **S** = significant

- NB: All our splenectomised patients received anti-pneumococcal, anti-Haemopilus influenza and anti- Neisseria meningitidis vaccines.
- NB: H. influenza b carriage was not detected in any of our patients or control children.

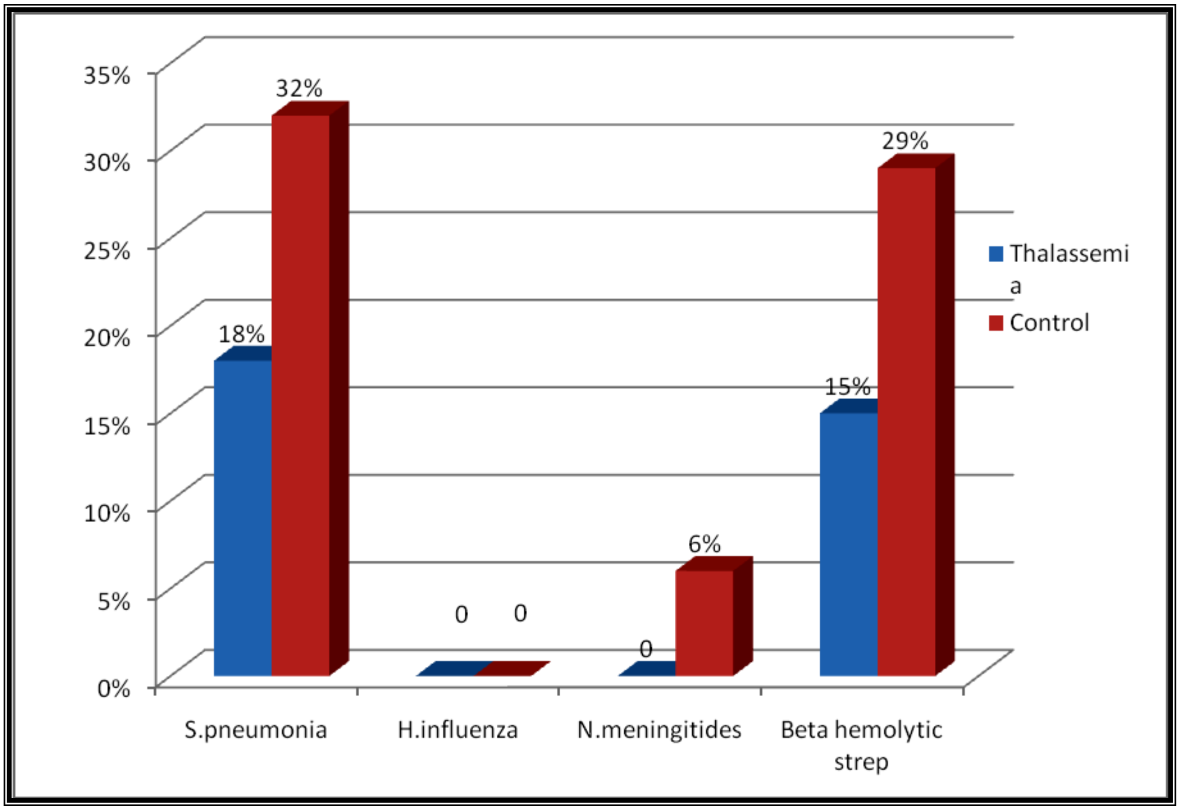

Figure (4): Incidence of encapsulated bacterial carriers among β-thalassemia major and control subjects.

Table (4) and figure (4) show that the incidences of encapsulated bacterial carriers among β-thalassemia major patients are significantly lower than those among the control subjects.

Table (5a): Incidence of Streptococcal pneumonia carriers in β-thalassemia major subgroups and the control group:

	β-Thalassemia major (nº = 100)			Control (nº = 100)
	Splenectomised and vaccinated (nº = 44)		Non-splenectomised (nº = 56)	
	With regular antibiotic (nº = 28)	With irregular or no antibiotic (nº = 16)		
Strept. pn.	3 (10.7%)	7 (44%)	8 (14.3%)	32 (32%)

Table (5b): Comparison between the incidences of Strept. pneumoniae carriers in β-thalassemia major subgroups and the control group:

	Splenectomised with irregular or no antibiotic	Non-splenectomised	Control
Splenectomised with regular antibiotic	P = 0.011 **(S)**	P = 0.64 **(NS)**	P = 0.025 **(S)**
Splenectomised with irregular or no antibiotic		P = 0.01 **(S)**	P = 0.35 **(NS)**
Non-splenectomised			P = 0.01 **(S)**

Test used is chi-square test. **S** = Significant. **NS** = Non-significant.

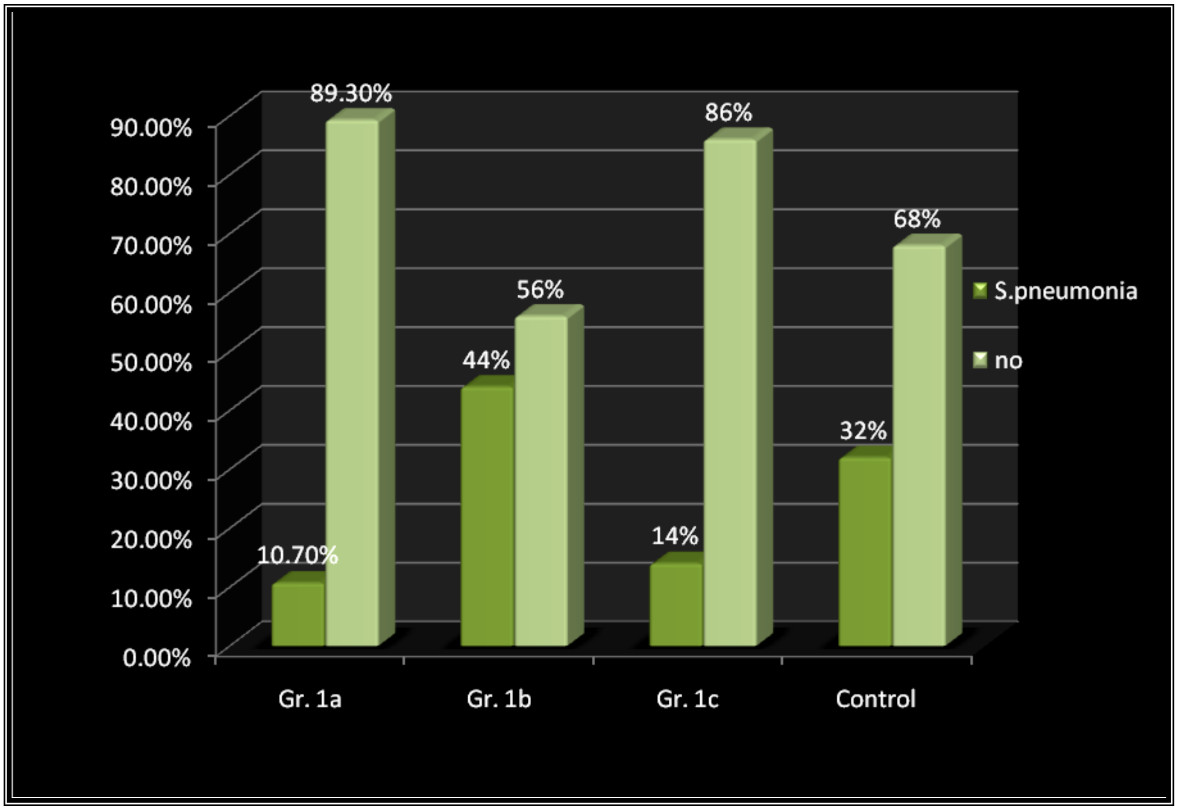

Figure (5): Incidence of Streptococcal pneumonia carriers in β-thalassemia major subgroups and the control group.

Table (6a): Incidence of β-hemolytic streptococcal carriers in β-thalassemia major subgroups and the control group:

	Thalassemia (nº = 100)			Control (nº = 100)
	Splenectomised (nº = 44)		Non-splenectomised (nº = 56)	
	With regular antibiotic (nº = 28)	With irregular or no antibiotic (nº = 16)		
β-hemolytic strept.	1 (3.5%)	6 (37.5%)	8 (14.3%)	29 (29%)

Test used is chi-square test.

Table (6b): Comparison between the incidences of β-hemolytic streptococcal carriers in β-thalassemia major subgroups and the control group:

	Splenectomised with irregular or no antibiotic	Non-splenectomised	Control
Splenectomised with regular antibiotic	P = 0.003 **(S)**	P = 0.13 **(NS)**	P = 0.004 **(S)**
Splenectomised with irregular or no antibiotic		P = 0.03 **(S)**	P = 0.49 **(NS)**
Non-splenectomised			P = 0.038 **(S)**

Test used is chi-square test. **S** = Significant. **NS** = Non-significant.

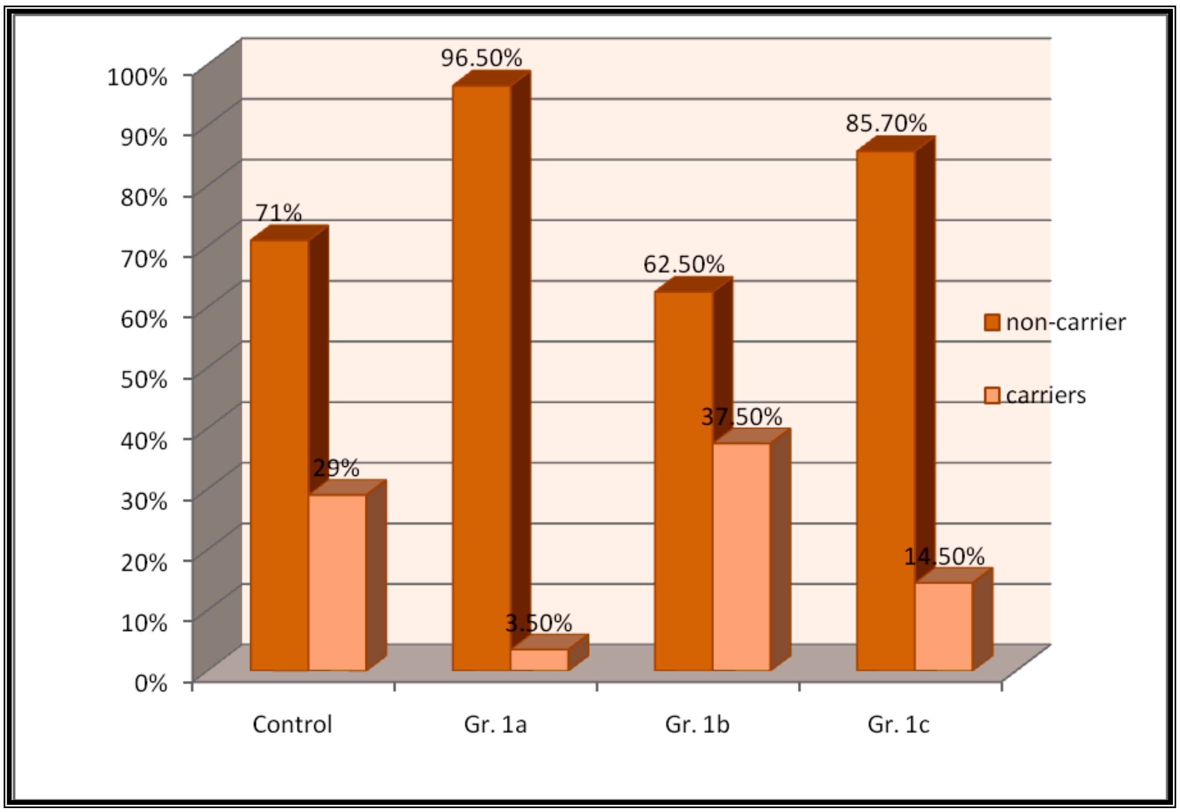

Figure (6): Incidence of β-hemolytic streptococcal carriers in β-thalassemia major subgroups and the control group.

From tables (5a), (5b), (6a) & (6b) as well as figures (5) & (6) we can see that among our patients, the incidences of both streptococcal pneumoniae & β-hemolytic streptococcal carriers are significantly highest in those splenectomised but receiving irregular or no antibiotic prophylaxis. The incidences of the non-splenectomised and those splenectomised and receiving regular antibiotic prophylaxis are significantly lower than that of the controls.

Table (7): Incidence of Neisseria Meningitidis carriers in β-thalassemia major subgroups and the control group:

<table>
<tr><td></td><td colspan="3">β-Thalassemia major
(nº = 100)</td><td>Control
(nº = 100)</td><td>P</td></tr>
<tr><td rowspan="3">Neisseria Meningitidis</td><td colspan="2">Splenectomised and vaccinated
(nº = 44)</td><td>Non-splenectomised
(nº = 56)</td><td rowspan="3">6 (6%)</td><td rowspan="3">0.04(S)</td></tr>
<tr><td>With regular antibiotic
(n= 28)</td><td>With no or irregular antibiotic
(n= 16)</td><td rowspan="2">0</td></tr>
<tr><td>0</td><td>0</td></tr>
</table>

Test used is chi square test. **S** = Significant.

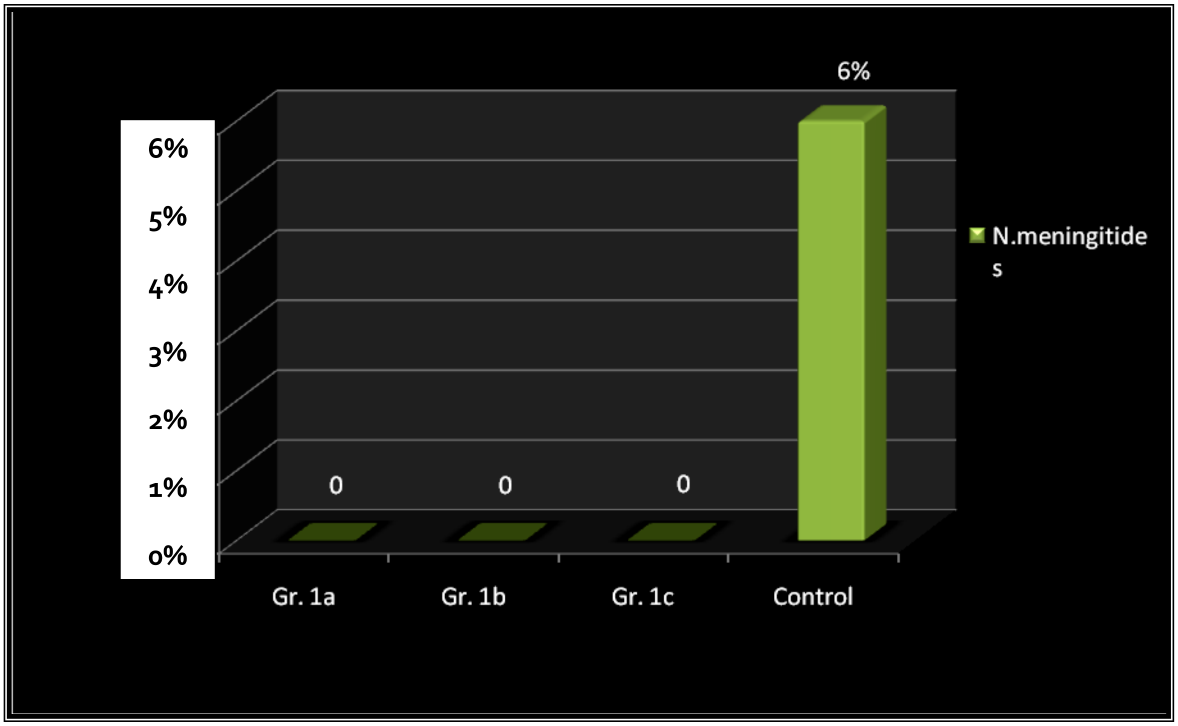

Figure (7): Incidence of Neisseria meningitides carriers in β-thalassemia major subgroups and the control group.

Table (7) and figure (7) reveal that no Neisseria meningitides carrier states were detected among our patients although it was found in 6% of the controls. The difference was statistically significant.

Table (8): Sex distribution among our thalassemic patients:

Group	Males	Females	P
Total thalassemic patients	**62 (62%)**	**38 (38%)**	**0.77 (NS)**
Splenectomized patients	**24 (54.5%)**	**20 (45.5%)**	**0.17 (NS)**
Carriers of Strept. pn. in splenectomized patients	**6 (60%)**	**4 (40%)**	**0.94 (NS)**
Carriers of β-hemol. Strept. in splenectomized patients	**4 (57%)**	**3 (43%)**	**0.78 (NS)**
Carriers of Strept. pn. in splenectomized patients on regular antibiotic intake	**1 (33.3%)**	**2 (66.7%)**	**0.32 (NS)**
Carriers of β-hemol. Strept. in splenectomized patients on regular antibiotic intake	**1 (100%)**	**0 (0%)**	**0.42 (NS)**
Carriers of Strept. pn. in splenectomized patients on irregular or no antibiotic intake	**5 (71.4%)**	**2 (28.6%)**	**0.56 (NS)**
Carriers of β-hemol. Strept. in splenectomized patients on irregular or no antibiotic intake	**2 (33.3%)**	**4 (66.7%)**	**0.56 (NS)**
Non-splenectomized patients	**38 (67.8%)**	**18 (32.2%)**	**0.17 (NS)**
Carriers of Strept. pn. in non-splenectomized patients	**6 (75%)**	**2 (25%)**	**0.4 (NS)**
Carriers of β-hemol. Strept. in non-splenectomized patients	**6 (75%)**	**2 (25%)**	**0.4 (NS)**

Test used is chi-square test. **NS** = Non-significant.

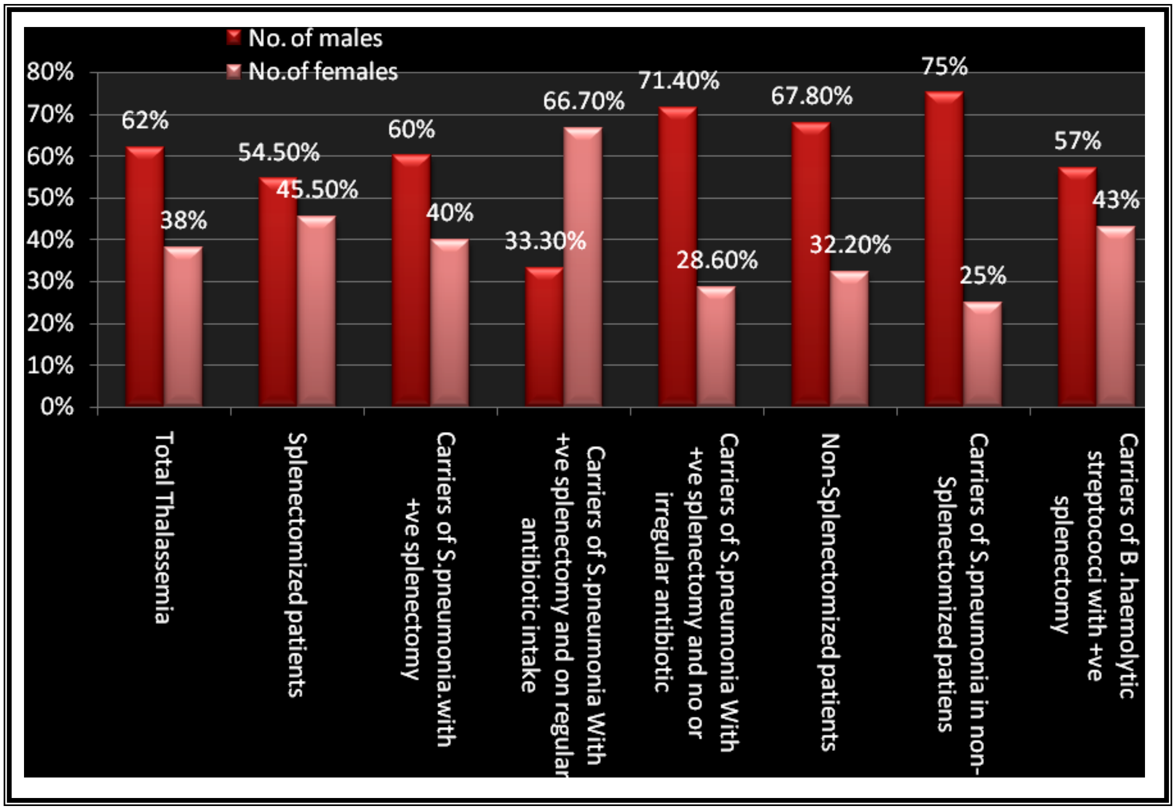

Figure (8): Sex distribution among our thalassemic patients.

Table (8) and figure (8) show that β-thalassemia major does not differentiate between male and female children.

Table (9): Sex distribution among the control carriers:

Group	Males	Females	P
Carriers of Strept. pn.	13%	19%	0.006 **(S)**
Carriers of β-hemol. Strept.	12%	17%	0.003 **(S)**
Carriers of Neisseria meningitides	2%	4%	0.16 **(NS)**

Test used is chi-square test. **S** = Significant. **NS** = Non-significant.

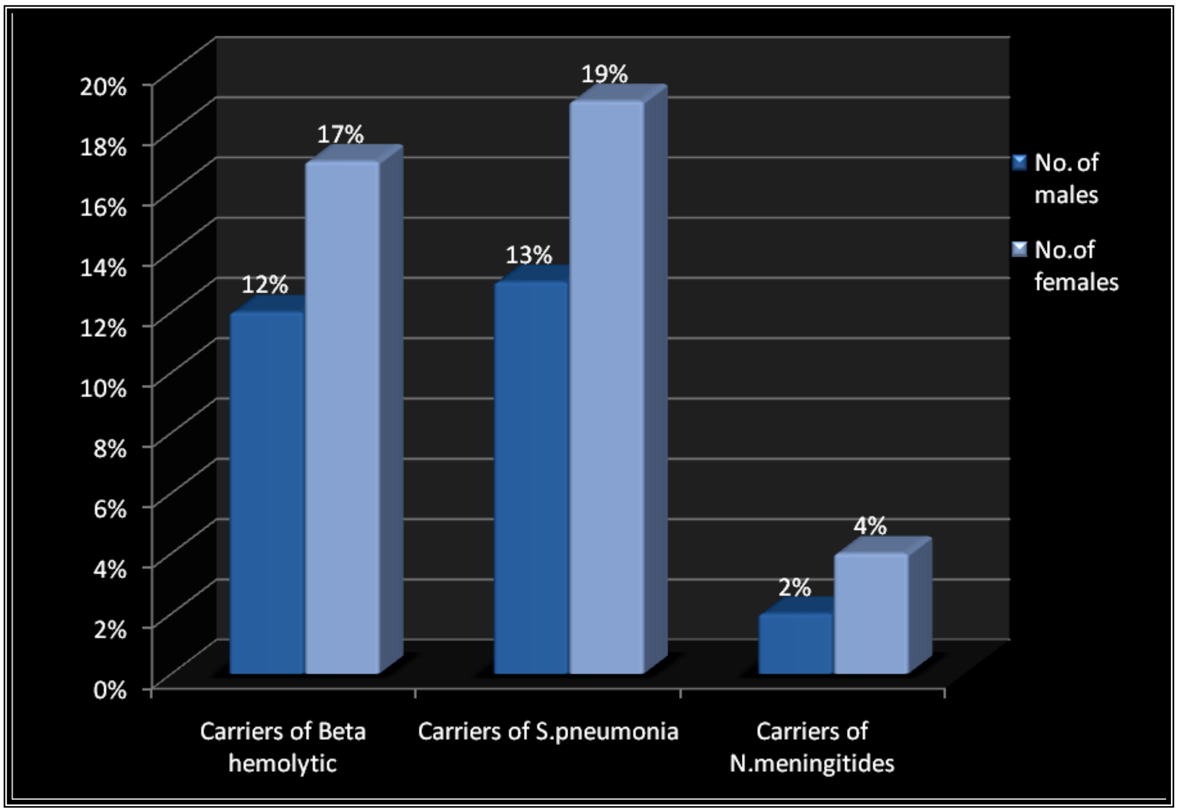

Figure (9): Sex distribution among the control carriers.

Table (9) and figure (9) show that both Pneumococcal and β-hemolytic Streptococcal carriages have statistically significant female predilection.
NB: H. influenza b carriage was not detected in any of our patients or control children.