RESULTS

In this study, subjects were divided into 2 groups:

1-Study group: were fifty male smokers

2-Control group: were thirty male non-smokers

both groups of the same age (20-40years) and gender .

Table (1) : Mean & standard deviation of pure tone thresholds of control group in dBHL.

Frequency(Hz)	$\bar{X}$	SD
250	14.7	± 2.5
500	14.0	± 2.1
1000	12.9	± 2.4
2000	11.0	± 2.7
4000	13.7	± 4.4
8000	14.3	± 5.2

Table (2): Mean & standard deviation of word discrimination scores of the control group.

Test	$\bar{X}$	SD
W.D	99.6	± 1.1

Table (3): Mean & standard deviation of acoustic reflex threshold of control group in dBSt.

Frequency (Hz)	$\bar{X}$	SD
500	89.9	± 4.0
1000	87.7	± 3.3
2000	89.9	± 3.9
4000	90.4	± 3.9

All subjects showed bilateral type (A) tympanogram

Table (4) Comparison between the mean & standard deviation of pure tone thresholds in of the right and left ears of the study group using t-student test .

Frequency (Hz)	Rt ear		Lt ear		t.	P
	$\bar{X}$	SD	$\bar{X}$	SD		
250	16.7	±3.59	16.6	±3.7	0.14	>0.05
500	16.8	±4.6	17.0	±4.5	0.22	>0.05
1000	16.5	±4.87	17.7	±4.63	0.11	>0.05
2000	18.2	±5.02	19.4	±5.01	0.69	>0.05
4000	20.8	±4.78	21.2	±5.76	0.38	>0.05
8000	23.0	±5.62	22.8	±5.72	0.18	>0.05

There is no significant statistical difference in the hearing threshold levels between Rt & Lt ears of study group.

Table (5): Comparison between the mean and standard deviation of the word discrimination scores of the right and left ears of the study group using t-student test .

Rt ear		Lt ear		t.	p
$\overline{X}$	SD	$\overline{X}$	SD		
99.04	±1.73	99.44	±1.40	1.38	>.05

There is no statistical significant difference between Rt and Lt ears .

Table (6) : Comparison between the mean & standard deviation of the acoustic reflex of the right and left ears of the study group using t-student test.

Frequency (Hz)	Rt ear		Lt ear		t.	p
	$\overline{X}$	SD	$\overline{X}$	SD		
500	91.4	±4.4	92.8	±4.06	1.65	>0.05
1000	93.2	±4.71	92.8	±5.36	0.39	>0.05
2000	95.2	±5.25	94.2	±5.08	0.97	>0.05
4000	95.4	±5.61	94.2	±5.08	0.38	>0.05

There is no significant statistical difference between Rt and Lt ears .

All subjects showed bilateral type (A) tympanogram .

Table (7) Mean & standard deviation of TEOAEs amplitude results in dBSPL in the control group.

Frequency(Hz)	$\overline{X}$	SD
1000	12.0	± 2.1
2000	13.6	± 3.2
3000	11.2	± 2.2
4000	8.9	± 3.6
5000	4.3	± 6.0
Overall	13.2	± 2.2

Table (8): Comparison between the mean & standard deviation of the different frequencies of TEOAEs of the right and left ears of the control group using t-student test.

Frequency (Hz)	Rt Ear		Lt Ear		t.	P
	$\overline{X}$	SD	$\overline{X}$	SD		
1000	12.6	± 2.5	11.5	± 1.6	2.03	>0.05
2000	13.8	± 3.6	13.4	± 2.7	0.49	>0.05
3000	11.4	± 2.4	11.1	± 1.9	0.54	>0.05
4000	9.0	± 3.8	8.7	± 3.4	0.32	>0.05
5000	4.5	± 6.1	4.1	± 6.0	0.26	>0.05
Overall	13.6	± 2.2	12.9	± 2.1	1.26	>0.05

There is no significant statistical difference in TEOAEs between Rt & Lt ears of control group.

Table (9): Results of TEOAEs in control group.

Pass		Partial pass		Fail		Total	
No	%	No	%	No	%	No	%
56	93.3	4	6.7	0	0.0	60	100.0

Table (10) Comparison between the mean and standard deviation of the different frequencies of TEOAEs of the right and left ears of the study group using t-student test .

Frequency (Hz)	Rt ear		Lt ear		t.	P
	$\overline{X}$	SD	$\overline{X}$	SD		
500	4.72	±3.84	4.7	±4.06	.01	>.05
1000	5.32	±4.14	5.96	±4.12	.77	>.05
2000	6.98	±4.97	7.44	±4.87	.57	>.05
3000	5.04	±4.34	4.51	±5.09	.56	>.05
4000	4.2	±3.34	2.99	±3.43	1.78	>.05
5000	2.24	±2.76	2.2	±2.92	0.07	>.05
Overall	8.46	±5.5	9.09	±6.52	0.52	>.05

There is no significant. statistical difference between Rt & Lt ears

Table (12): Comparison between the mean and standard deviation of the pure tone thresholds of the study and control groups using t-student test .

Frequency Hz	Study group $\overline{X}$	SD	Control group $\overline{X}$	SD	t.	P
250	16.65	±3.63	14.7	±2.2	4.24	<0.001
500	16.9	±4.54	14.0	±2.1	5.48	<0.001
1000	16.45	±4.75	12.9	±2.4	6.23	<0.001
2000	18.8	±5.03	11.0	±2.7	12.75	<0.001
4 000	21.0	±5.27	13.7	±4.4	9.42	<0.001
8000	22.9	±5.65	14.3	±5.2	9.81	<0.001

There is statistical significant difference but the results were within normal as the mean of the threshold of both groups did not exceeded 25 dB in all frequencies ANSI, (1969).

Table (12): Comparison between the mean and standard deviation of the study and control group regarding the word discrimination scores using t-student test .

Test	Study group $\overline{X}$	SD	Control group $\overline{X}$	SD	t.	p
WD	99.52	±1.3	99.6	±1.1	0.414	> 0.05

There is no significant. statistical difference between study and control groups .

Table (13): Comparison between the mean and standard deviation of the acoustic reflex of the study and control groups using t-student test .

Frequency Hz	Study Group $\overline{X}$	SD	Control group $\overline{X}$	SD	t.	P
500	92.1	±4.27	89.9	±4.0	3.28	<0.001
1000	92.0	±5.03	87.7	±3.3	6.53	<0.001
2000	94.7	±5.16	89.9	±3.9	6.67	<0.001
4000	95.6	±5.24	90.4	±3.9	7.12	<0.001

There is statistical significant difference between both study and control groups but both groups were within normal limits (70-90 dBSL) according to Jerger, (1976)

Table (15): Comparison between the study and control groups regarding the results of TEOAEs , using Chi square test .

Results	Study Group		Control Group		Total	
	No	%	No	%	No	%
P	46	46.0	56	93.3	102	63.8
Pp	30	30.0	4	6.7	34	21.2
Fail	24	24.0	0	0.0	24	15.0
Total	100	100.0	60	100.0	160	100.0

There is significant statistical difference between study and control groups, as adjusted x^2 =37.19 & P<0.001 ,No : the number of ears , p: pass, Pp: partial pass ,

Table.(16): Comparison between mean and standard deviation of the TEOAEs amplitude at different frequencies of the study and control groups using t-student test

Frequency Hz	Study group		Control group		t.	P
	$\overline{X}$	SD	$\overline{X}$	SD		
1000	5.64	±4.12	12.0	±2.1	12.98	< 0.001
2000	6.96	±13.28	13.6	±3.2	4.78	< 0.001
3000	5.4	±4.76	11.2	±2.7	9.83	< 0.001
4000	3.96	±3.38	8.9	±3.6	8.67	< 0.001
5000	2.2	±2.83	4.3	±6.0	2.55	< 0.001
Overall	8.77	±6.01	13.2	±2.2	6.67	< 0.001

There is highly significant. statistical difference between study and control groups.

Table (17): Correlation between the duration of cigarette smoking and the results of TEOAEs in the study group using Anova and t-student test .

Result	No	Duration /years		Group	t.	P
		$\overline{X}$	SD			
P	22	7.32	±5.04	P*PP	T1=0.004	>0.05
PP	16	7.31	±2.91	P*F	T2=2.09	<0.05
F	12	10.83	±4.49	PP*F	T3=2.36	<0.05

Anova test (F) =3.007 i.e p>0.05 i.e Anova is insignificant but by using t-student test ,there is statistical significant difference between (fail and pass results), also between (fail and partial pass) but between pass and partial pass ,there is no significant statistical difference. Therefore, duration of cigarette smoking has a significant effect on results of TEOAEs

N:B , P:pass, Pp :partial pass , F: fail

Table (18): Correlation between the age of the patients & TEOAEs in the study group using Anova and t-student test .

Result	No	Age		Group	t.	P
		$\overline{X}$	SD			
P	22	32.5	±6.6	P*PP	0.13	>0.05
Pp	16	32.2	±5.9	P*F	1.55	>0.05
Fail	12	35.2	±3.6	PP*F	1.66	>0.05

There is no significant statistical difference by Anova and t-test ,as F =1.09 i.e p>.05 and t. is shown in the table

No : number of patients

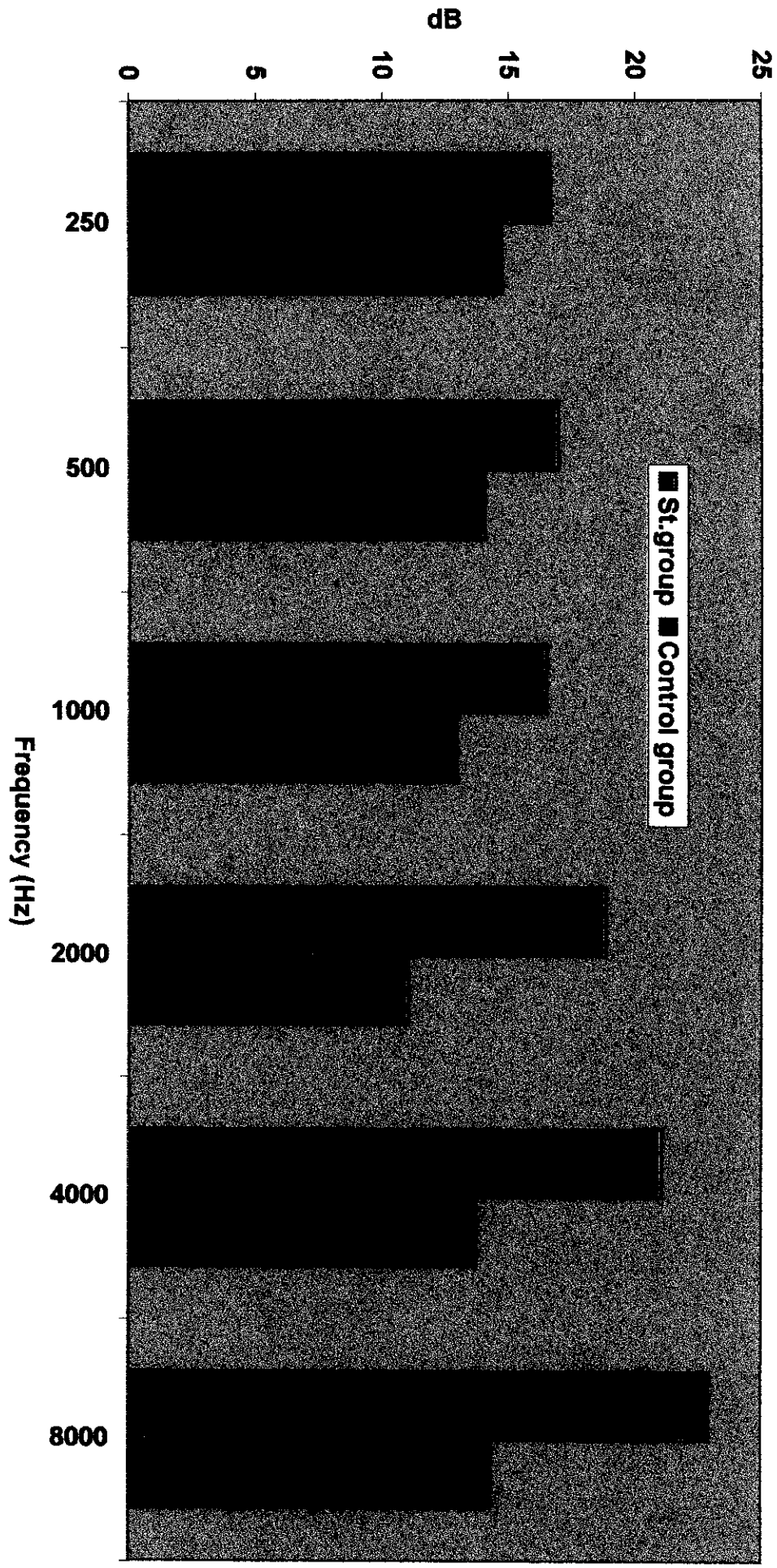

Chart (2) Mean of pure tone thresholds of study and control groups

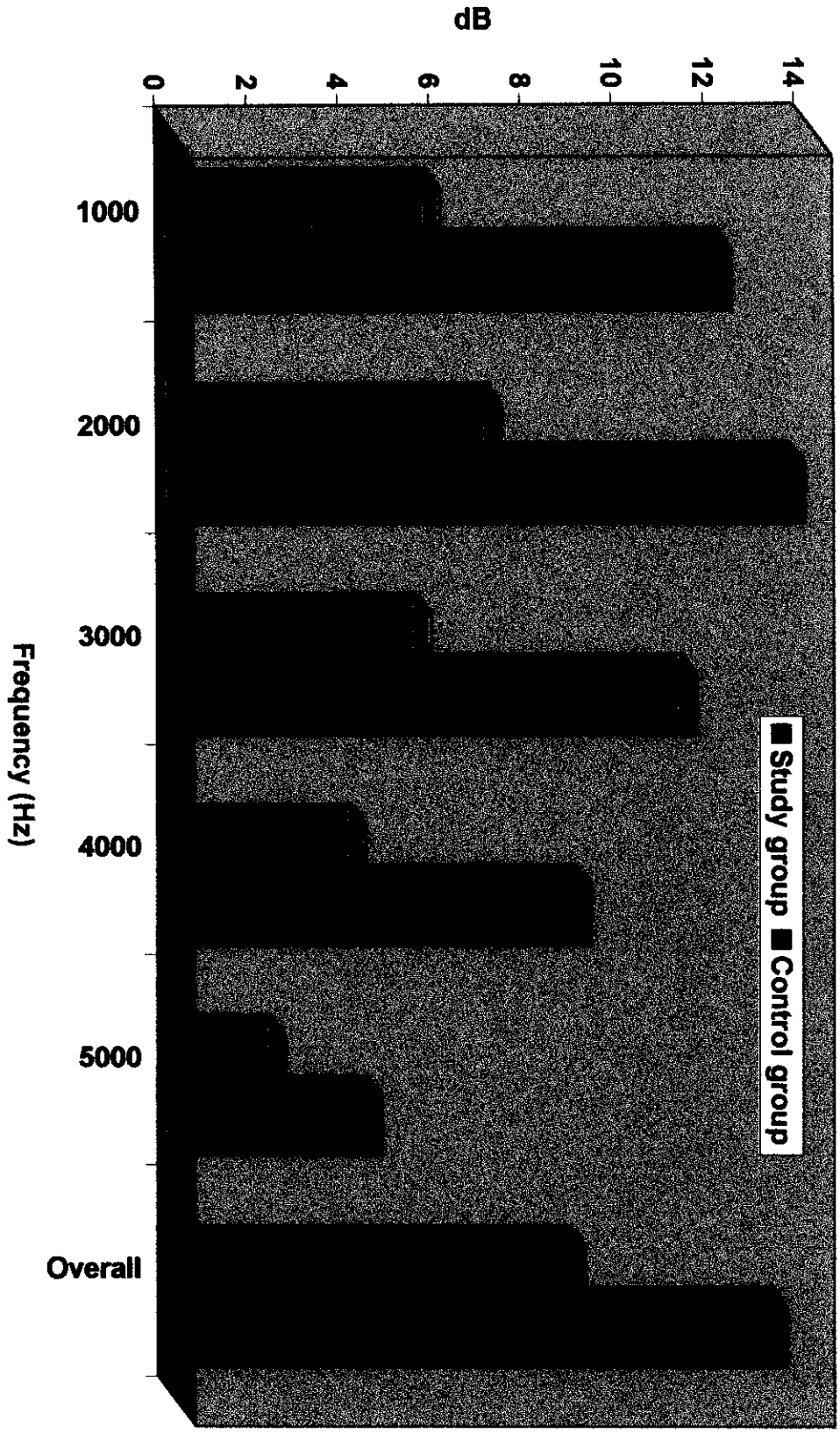

Chart (3) Mean of TOEAEs amplitude of study and control groups

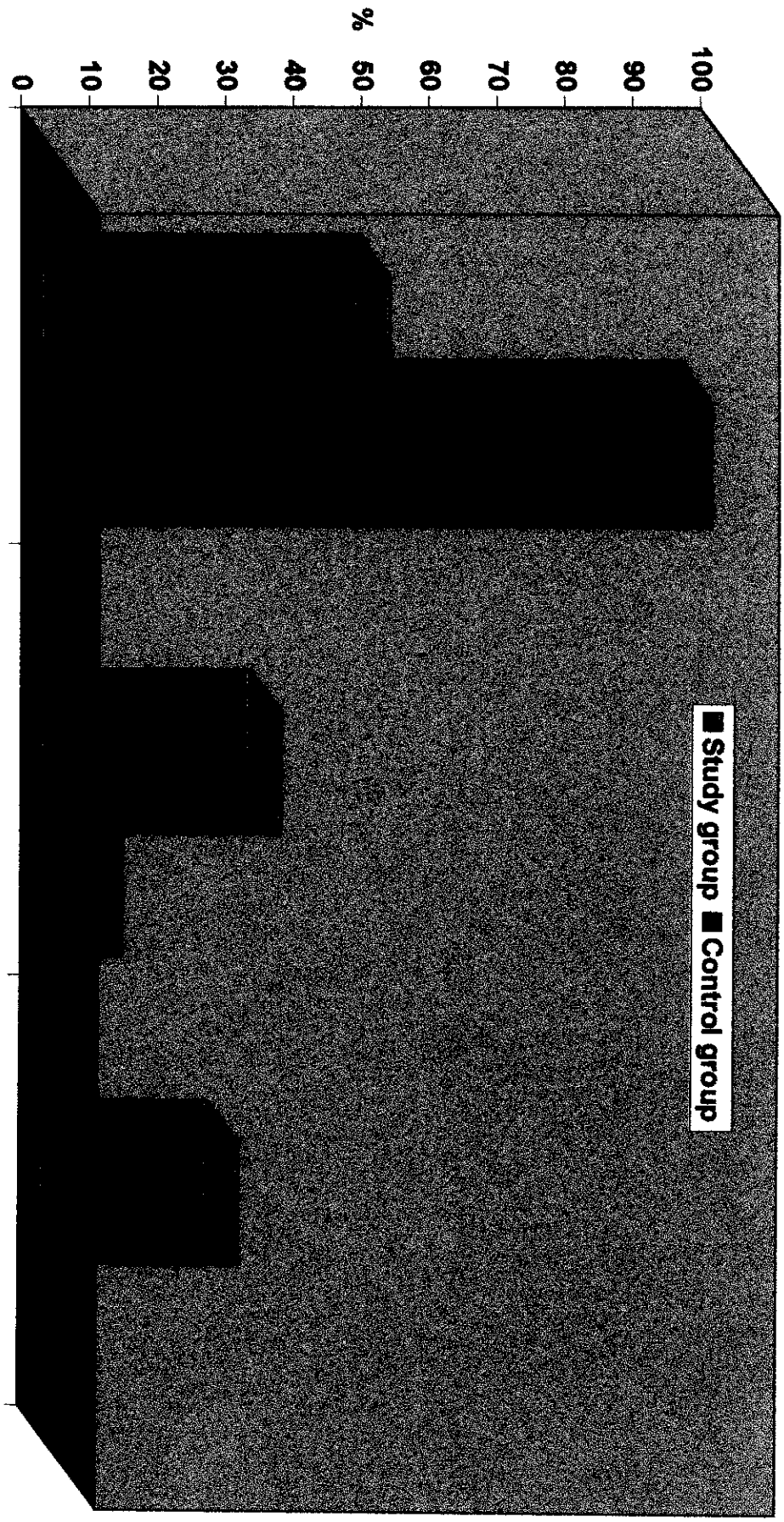

Chart (4) Percentages of the results of TEOAEs of the study and control groups

Mean of duration of smoking in relation to the results of TEOAEs among study group .