

RESULTS

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The individuals included in the present work, were divided into two groups as shown in table (1):-

Group (A):

Patients suffering from bronchogenic carcinoma.

Group (B):

Contained healthy subjects as control.

Their total number was (30) and they were distributed in the different groups according to sex distribution as shown in table (2) & (3), the group (A) contained (20) patients, (17) were males 85%, and (3) were females 15 %, while group (B) contained (10) subjects, (6) were males 60%, and (4) were females 40 %.

The distribution of the age in patients with bronchogenic carcinoma (group A) is shown in table (4) and in control group (group B) is shown in table (5). Figure (1) shows that the ages of the patients with bronchogenic carcinoma do not match with ages of the control.

Table (6) shows incidence of smoking in (group A), (16) were smokers 80% and (4) were non smokers 20%. In control

group (group B), it was 50 % smokers and 50 % non smokers as shown in table (7).

As shown in table (8); 9 (45 %) of the patients in (group A) had squamous-cell carcinoma; (6) 30 % had small-cell carcinoma, and (5) 20 % had adenocarcinoma.

Table (9) shows the serum calcitonin levels in control subjects, the value was $(32.9 \pm 9.19 \text{ pg/ml.})$.

Table (10) shows serum calcitonin levels in patients with bronchogenic carcinoma (group A), the value was $(49.85 \pm 20.25 \text{ pg/ml.})$; compared with the control, the statistical difference was highly significant ($P < 0.01$). This is shown in Figure (2&3).

Tables (11, 12 and 13) show the serum calcitonin levels in squamous cell carcinoma $(40 \pm 9.43 \text{ pg/ml.})$; small cell carcinoma $(69 \pm 25.12 \text{ pg/ml.})$ and adenocarcinoma $(44.6 \pm 13.32 \text{ pg/ml.})$.

Figure (4) shows serum calcitonin levels in the three pathological types, compared with control group. In squamous-cell type the statistical difference was insignificant ($P > 0.05$); in small-cell type it was very highly significant ($P < 0.0005$); and in adenocarcinoma; it was significant ($P < 0.05$). Figure (5) shows graphic illustration of serum calcitonin in these types.

Table (14) shows statistical comparison between patients with bronchogenic carcinoma and control group as regard to serum calcitonin.

Table (15, 16 and 17) show statistical comparison between squamous-cell carcinoma; small-cell carcinoma and adenocarcinoma respectively with control as regard to serum calcitonin.

Statistical comparison between small cell carcinoma and adenocarcinoma as regard to serum calcitonin is shown in table (18) the difference was significant ($P < 0.05$). Table (19) shows the statistical comparison between small-cell carcinoma and squamous-cell carcinoma as regard to serum calcitonin, the difference was very high significant ($P < 0.0005$). The statistical comparison between adenocarcinoma and squamous-cell carcinoma is demonstrated in table (20) and the difference was insignificant ($P < 0.2$).

Serum calcium value in control group was $(7.99 \pm 0.91\text{mg\%})$ as shown in table (21).

Table (22) shows the serum calcium value in patients with bronchogenic carcinoma, it was $(10.06 \pm 2.08\text{mg\%})$ The difference was high significant as compared to control group ($P < 0.005$). The comparison is shown in fig. (6); graphic illustration in Fig. (7).

Table (23, 24, and 25) and Fig. (8) show serum calcium values in the pathological types of bronchogenic carcinoma. In squamous-cell type, the value was $(10.8 \pm 2.11 \text{ mg\%})$ the difference was highly significant compared with control group ($P < 0.0025$). In small cell type the value was $(9.36 \pm 2.28 \text{ mg\%})$ and the difference was statistically insignificant compared to control ($P > 0.05$) and in adenocarcinoma, serum calcium value was $(9.56 \pm 1.68 \text{ mg\%})$ the difference was significant ($p > 0.025$). Graphic illustration is shown in Fig (9) .

Table (26) shows statistical comparison between patients with bronchogenic carcinoma and the control group as regard to serum calcium.

Table (27) shows statistical comparison between the three pathological types in the patients with bronchogenic carcinoma and the control group, as regard to serum calcium.

Table (28) shows statistical comparison between squamous-cell carcinoma and small-cell carcinoma in patients with bronchogenic carcinoma as regard to serum calcium.

Table (29) shows statistical comparison between squamous-cell carcinoma and adenocarcinoma in patients with bronchogenic carcinoma as regard to serum calcium.

Table (30) shows statistical comparison between adenocarcinoma and small-cell carcinoma in patients with bronchogenic carcinoma as regard to serum calcium.

Table (31) shows the serum calcium value in the three pathological types in the patients with bronchogenic carcinoma, compared to control group according to presence or absence of bone metastasis.

Table (32) is collective table shows the statistical comparison between control, patients with bronchogenic carcinoma, and the three pathological cell types as regard to age, serum calcitonin and serum calcium.

Group	Individuals forming the groups
A	Patients with bronchogenic carcinoma.
B	Healthy normal subjects as control.

Table (1)

Distribution of the individuals in the different groups.

Patients with bronchogenic carcinoma	Number	%
Male	17	85
Female	3	15
Total	20	100

Table (2)

Distribution of the patients with bronchogenic carcinoma (group A) according to sex.

Control	Number	%
Male	6	60
Female	4	40
Total	10	100

Table (3)

Distribution of control subjects (group B) according to sex.

Age groups	Number	%
31-40 years	3	15
41-50 years	4	20
51-60 years	8	40
61-70 years	5	25

Table (4)

Age distribution in bronchogenic carcinoma patients (group A) .

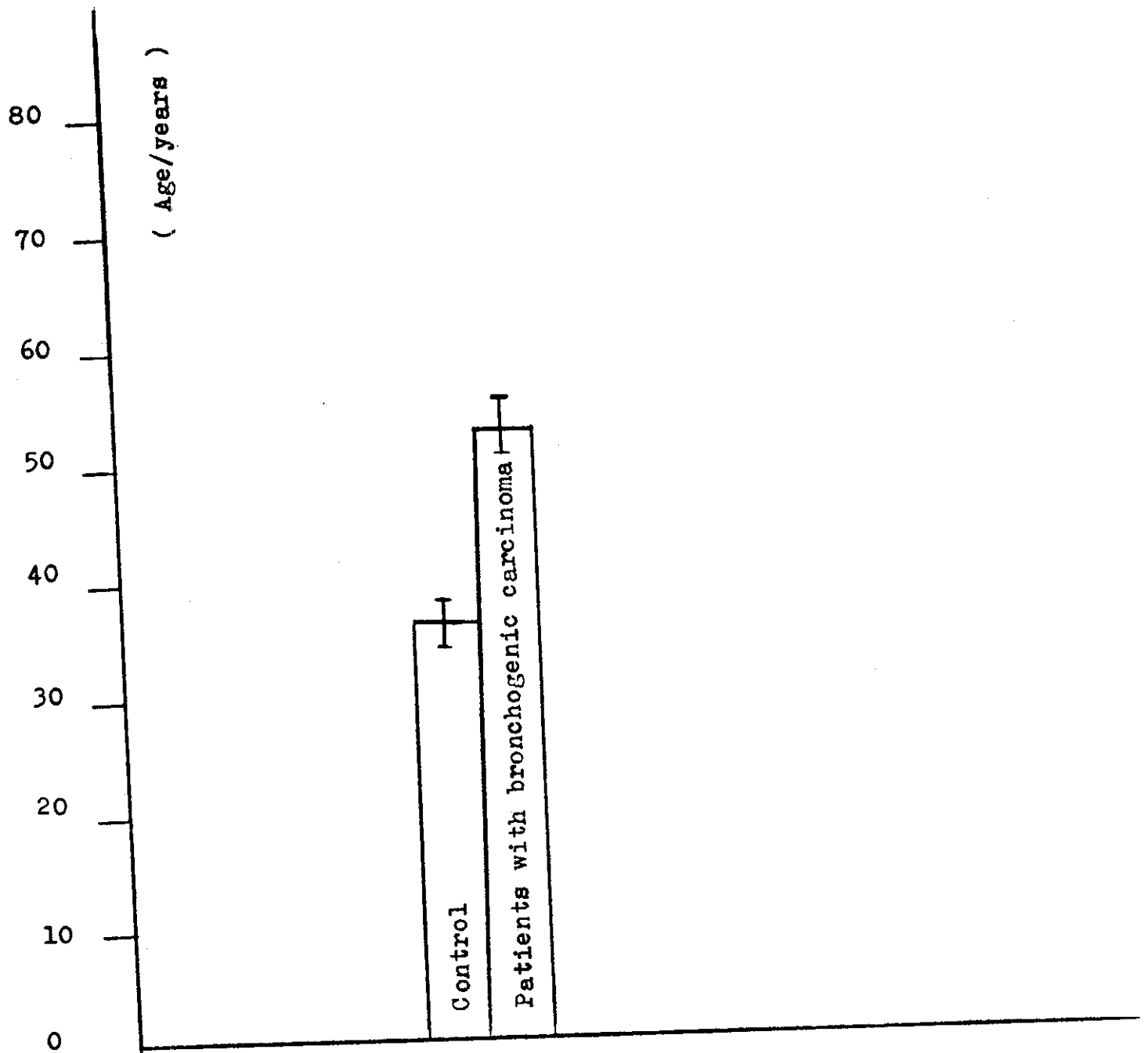
- . Age range 35 - 66 years
- . Mean \pm SD 53.15 \pm 9.40
- . Mean \pm SE 53.15 \pm 2.10

Age groups	Number	%
21 - 30 years	3	30
31 - 40 years	5	50
41 - 50 years	2	20

Table (5)

Age distribution in control group (group B) .

- . Age range 25 - 45 years
- . Mean \pm SD 36.3 \pm 6.396
- . Mean \pm SE 36.3 \pm 2.022



Figure(1). Age distribution in the different groups.

Patients with bronchogenic carcinoma	Number	%
Smokers	16	80
Non-smokers	4	20

Table (6)

Incidence of smoking in patients with
bronchogenic carcinoma (group A).

Control	Number	%
Smokers	5	50
Non - smokers	5	50

Table (7)

Incidence of smoking in control group (Group B).

Pathological Cell - Type	Number	%	Age range	Mean \pm SD
Squamous_cell Carcinoma	9	45	35-65years	52.6 \pm 9.3°
Small-cell carcinoma	6	30	43-66years	57 \pm 7.72
Adenocarcinoma	5	20	38-63years	49.4 \pm 8.68

Table (8)

Distribution of patients with bronchogenic carcinoma (group A)
According to pathological-cell types.

Serial number	Serum calcitonin level (pg/ml)*
1	18
2	28
3	46
4	38
5	33
6	22
7	32.5
8	30
9	46.5
10	35

Table (9)

Serum calcitonin levels in control group
(group B).

- . Range 18 - 46.5 pg/ml.
- . Mean \pm SD 32.9 \pm 9.19
- . Mean \pm SE 32.9 \pm 2.91

* = Picogram Per ml.

Serial number	Serum calcitonin level (p g / m l)
1	59
2	46
3	42
4	48
5	27
6	35
7	35
8	33
9	35
10	110
11	33
12	36
13	76
14	48
15	80
16	66
17	46
18	41
19	58
20	43

Table (10)

Serum calcitonin levels in patients with
bronchogenic carcinoma (group A).

- . Range 27 - 110 pg/ml.
- . Mean \pm SD 49.85 \pm 20.25
- . Mean \pm SE 49.85 \pm 4.52
- . P < 0.01 **Highly significant with control.

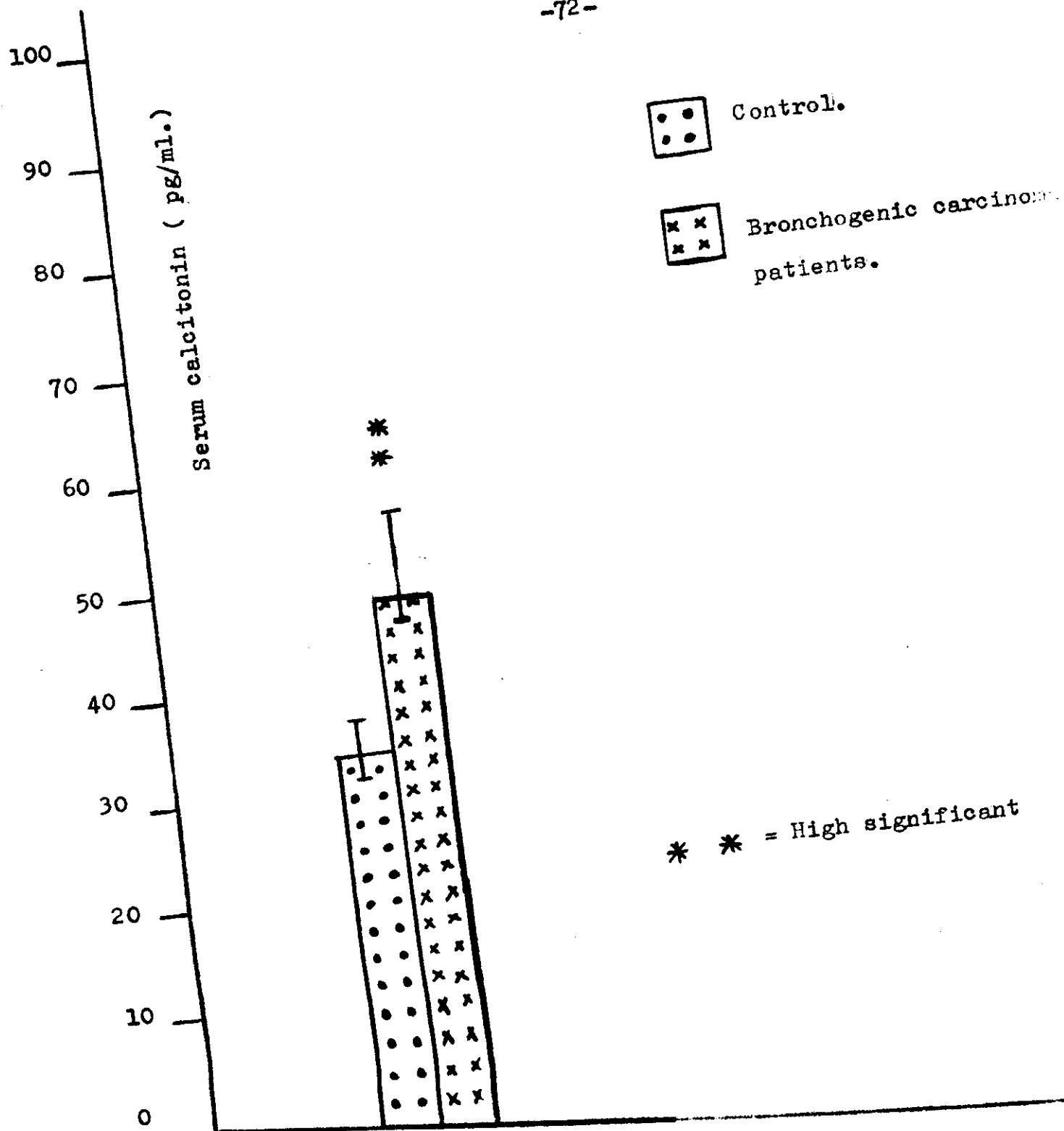


Figure (2) . Serum calcitonin in patients with bronchogenic carcinoma compared with control.

(—) = control
 (---) = Bronchogenic carcinoma patients

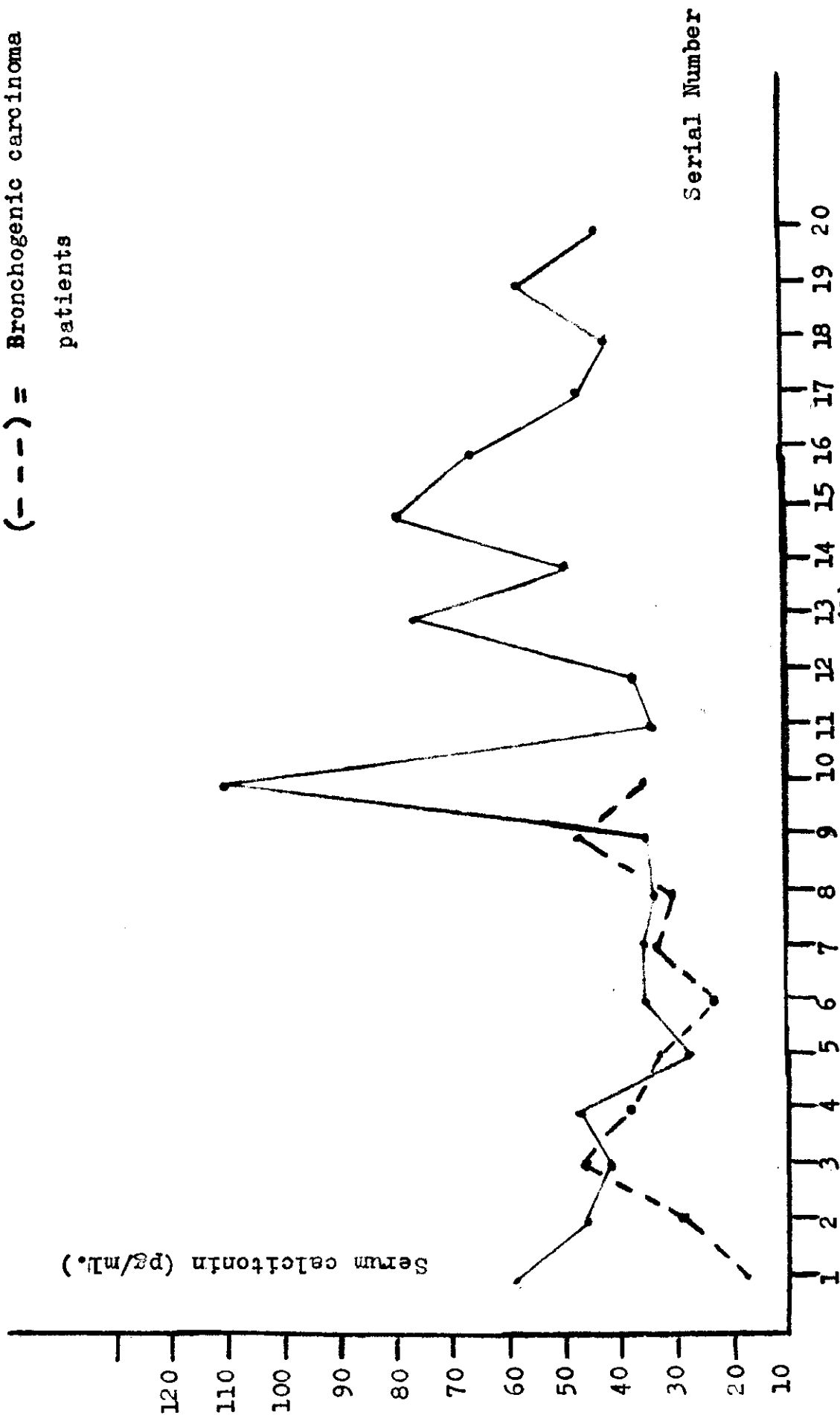


Figure (3)

Graphic illustration of serum calcitonin in control and bronchogenic carcinoma patients.

Serial number	Serum calcitonin level (pg / ml)
1	42
2	48
3	27
4	35
5	33
6	35
7	36
8	46
9	58

Table (11)

Serum calcitonin levels with squamous-cell carcinoma in (group A).

. Range 27 - 58 pg / ml.

. Mean \pm SD 40 ± 9.43

. Mean \pm SE $40 \pm 3.143^{\circ}$

. P > 0.05 † insignificant with control.

Serial Number	Serum calcitonin level (pg / ml)
1	59
2	46
3	110
4	76
5	80
6	43

Table (12)
Serum calcitonin levels with small cell carcinoma
in (group A).

Range 43 - 110 pg / ml

Mean \pm SD 69 \pm 25.12

Mean \pm SE 69 \pm 10.259

P < 0.0005***very highly significant
with control.

Serial number	Serum calcitonin level (pg / ml)
1	35
2	33
3	48
4	66
5	41

Table (13)

Serum calcitonin levels with adenocarcinoma
in (group A).

Range 33 - 66 pg / ml

Mean \pm SD 44.6 \pm 13.32

Mean \pm SE 44.6 \pm 6.045

P $<$ 0.05^{*} significant with control.

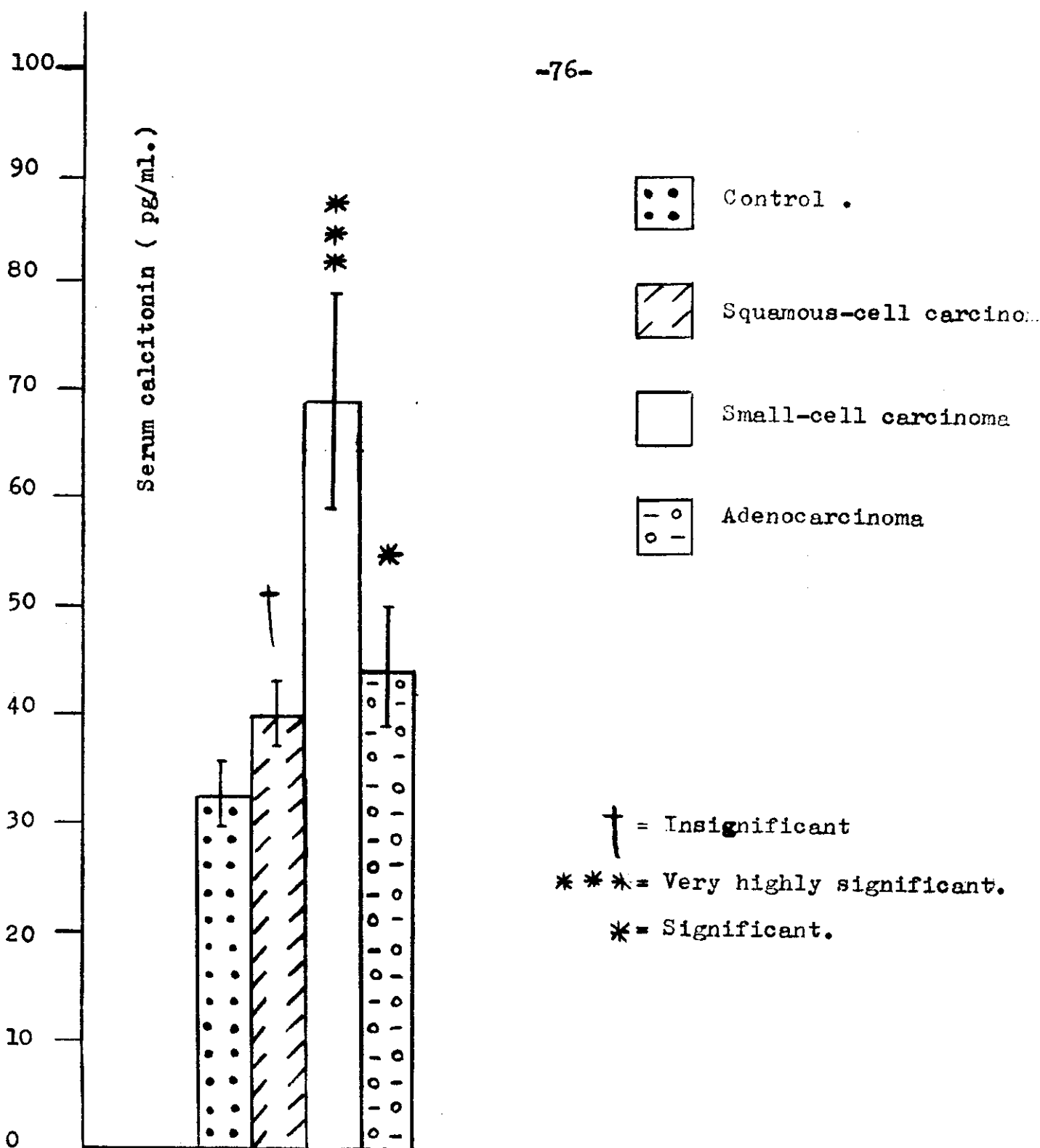


Figure (4). Serum calcitonin in the three pathological types compared with control.

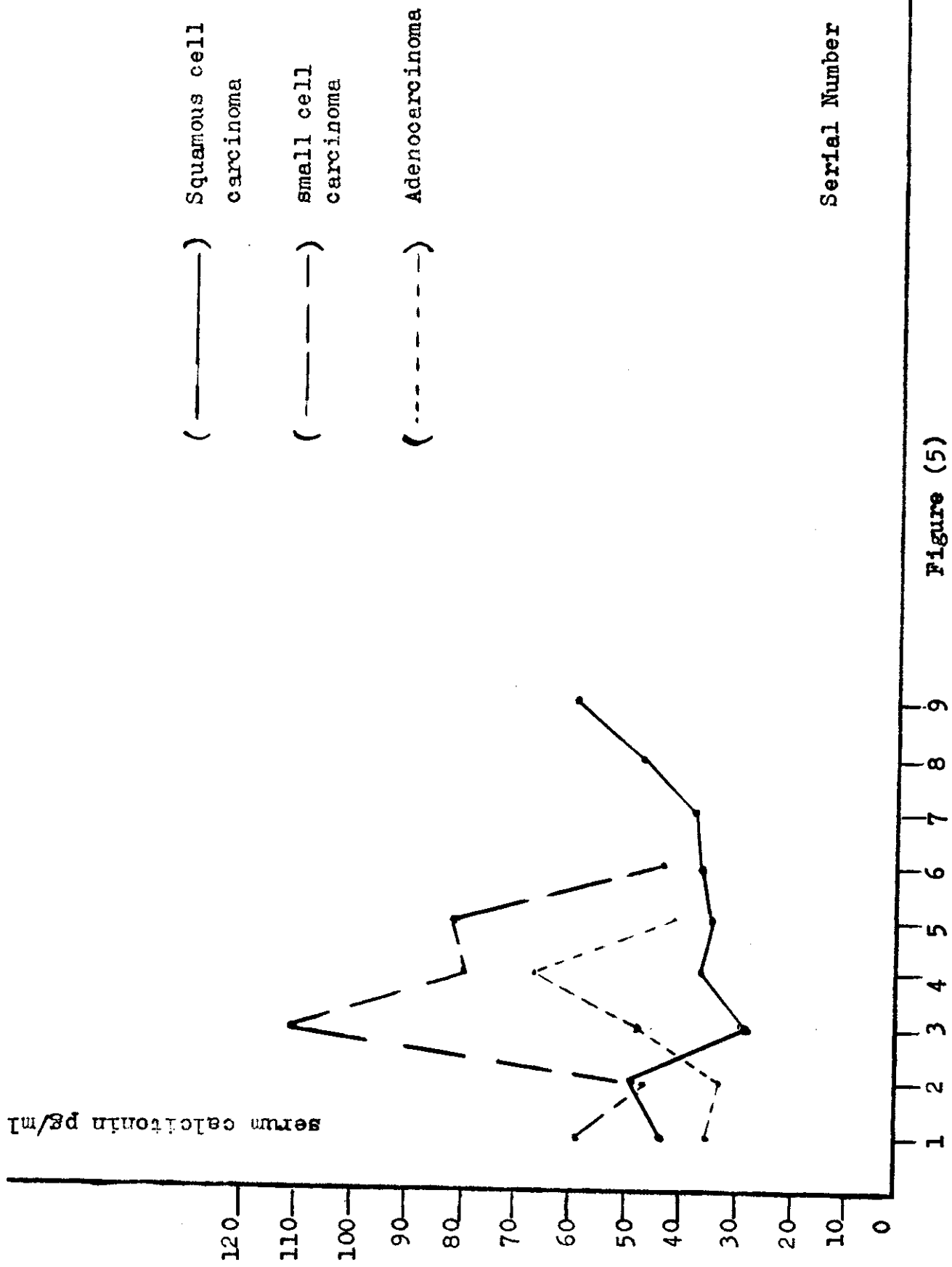


Figure (5)

Graphic illustration of serum calcitonin in the three pathological cell types.

Studied groups	Serum calcitonin (pg/ml)
<u>Control group</u>	
Mean	32.9
<u>±</u> SD	9.19
<u>±</u> SE	2.91
<u>Patients with</u>	
<u>bronchogenic</u>	
<u>carcinoma</u>	
Mean	49.85
<u>±</u> SD	20.25
<u>±</u> SE	4.52
"t"	2.676
P	< 0.01 ^{**}

^{**} = highly significant.

Table (14)

Statistical comparison between patients with bronchogenic carcinoma and control group as regard to serum calcitonin.

Studied groups	Serum calcitonin (pg / ml)
<u>Control group</u>	
Mean	32.9
\pm SD	9.19
\pm SE	2.91
<u>Squamous cell carcinoma in group A</u>	
Mean	40
\pm SD	9.43
\pm SE	3.143°
"t"	1.714
P	> 0.05 t

† = Insignificant.

Table (15)

Statistical comparison between squamous cell carcinoma in group A and the control group as regard to serum calcitonin.

Studied groups	Serum calcitonin (pg / ml.)
<u>Control group</u>	
Mean	32.9
\pm SD	9.19
\pm SE	2.91
<u>Small - cell carcinoma in group A</u>	
Mean	69
\pm SD	25.12
\pm SE	10.253
"t"	4.180 ***
P	< 0.0005

*** = Very high significant.

Table (16)

Statistical comparison between small-cell carcinoma in (group A) and control group as regard to serum calcitonin.

Studied groups	Serum calcitonin (pg/ml.)
<u>Control group</u>	
Mean	32.9
\pm SD	9.19
\pm SE	2.91
<u>Adenocarcinoma</u> <u>in (group A)</u>	
Mean	44.6
\pm SD	13.32
\pm SE	6.045
"t"	2.009
P	< 0.05 *

* = Significant.

Table (17)

Statistical comparison between adenocarcinoma in group (A) and control group as regard to serum calcitonin pg/ml.

Pathological types	Serum calcitonin (pg/ml.)
<u>Small cell carcinoma</u>	
<u>in group (A)</u>	
Mean	69
\pm SD	25.12
\pm SE	10.253
<u>Adenocarcinoma in</u>	
<u>group (A)</u>	
Mean	44.6
\pm SD	13.32
\pm SE	6.045
"t"	1.9446
P	< 0.05 *

* = Significant.

Table (18)

Statistical comparison between small-cell carcinoma and adenocarcinoma as regard to serum calcitonin.

Pathological types	Serum calcitonin (pg/ml.)
<u>Small cell carcinoma</u>	
<u>in group (A)</u>	
Mean	69
\pm SD	25.12
\pm SE	10.253
<u>Squamous cell carcinoma</u>	
<u>in group (A)</u>	
Mean	40
\pm SD	9.43
\pm SE	3.143
"t"	
P	$\angle 0.0005$ ***

*** = Very high significant.

Table (19)

Statistical comparison between small-cell carcinoma and squamous cell carcinoma in group (A) as regard to serum calcitonin.

Pathological types	Serum Calcitonin (pg/ml.)
Adenocarcinoma in (group A)	
Mean	44.6
\pm SD	13.32
\pm SE	6.045
Squamous cell carcinom in (group A)	
Mean	40
\pm SD	9.43
\pm SE	3.143
"t"	0.757
P	< 0.2 †

† =insignificant

Table (20)

Statistical comparison between adenocarcinoma and squamous-cell carcinoma as regard to serum calcitonin.

Serial Number	Serum calcium level
	(mg %)
1	9.6
2	7.8
3	6.7
4	7.1
5	7.6
6	9.3
7	8.5
8	8.1
9	7.6
10	7.6

Table (21)

Serum calcium level in control subjects
(group B).

Range 6.7 - 9.6 mg %

Mean \pm SD 7.99 \pm 0.91

Mean \pm SE 7.99 \pm 0.29

Serial Number	Serum calcium
	mg %
1	11.26
2	10.9
3	10.16
4	11.9
5	7.8
6	8.5
7	7.4
8	8.7
9	9.8
10	12.6
11	7.14
12	9.8
13	13.7
14	9.3
15	10.9
16	15.1
17	8.8
18	8.7
19	9.8
20	8.9

Table (22)
Serum calcium levels in patients with broncho-
genic carcinoma (group A)

Range	6.6	-	15.1	mg %
Mean \pm SD	10.06	\pm	2.08	
Mean \pm SE	10.06	\pm	0.46	
P < 0.005	** High significant with control.			

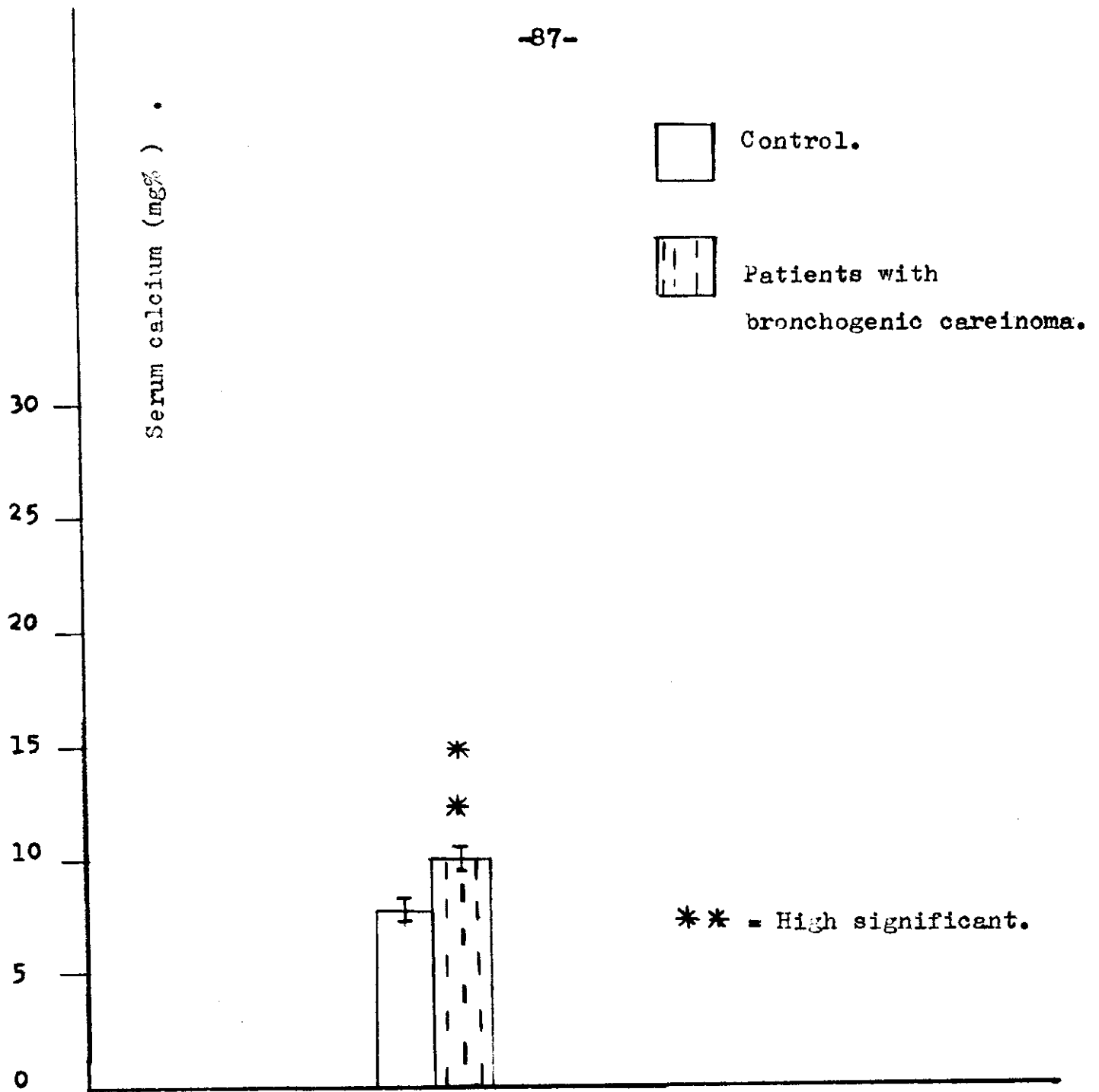


Figure (6). Serum calcium in patients with bronchogenic carcinoma compared with the control.

serum calcium (mg %)

(—) = Control

(---) = Bronchogenic carcinoma patients

carcinoma patients

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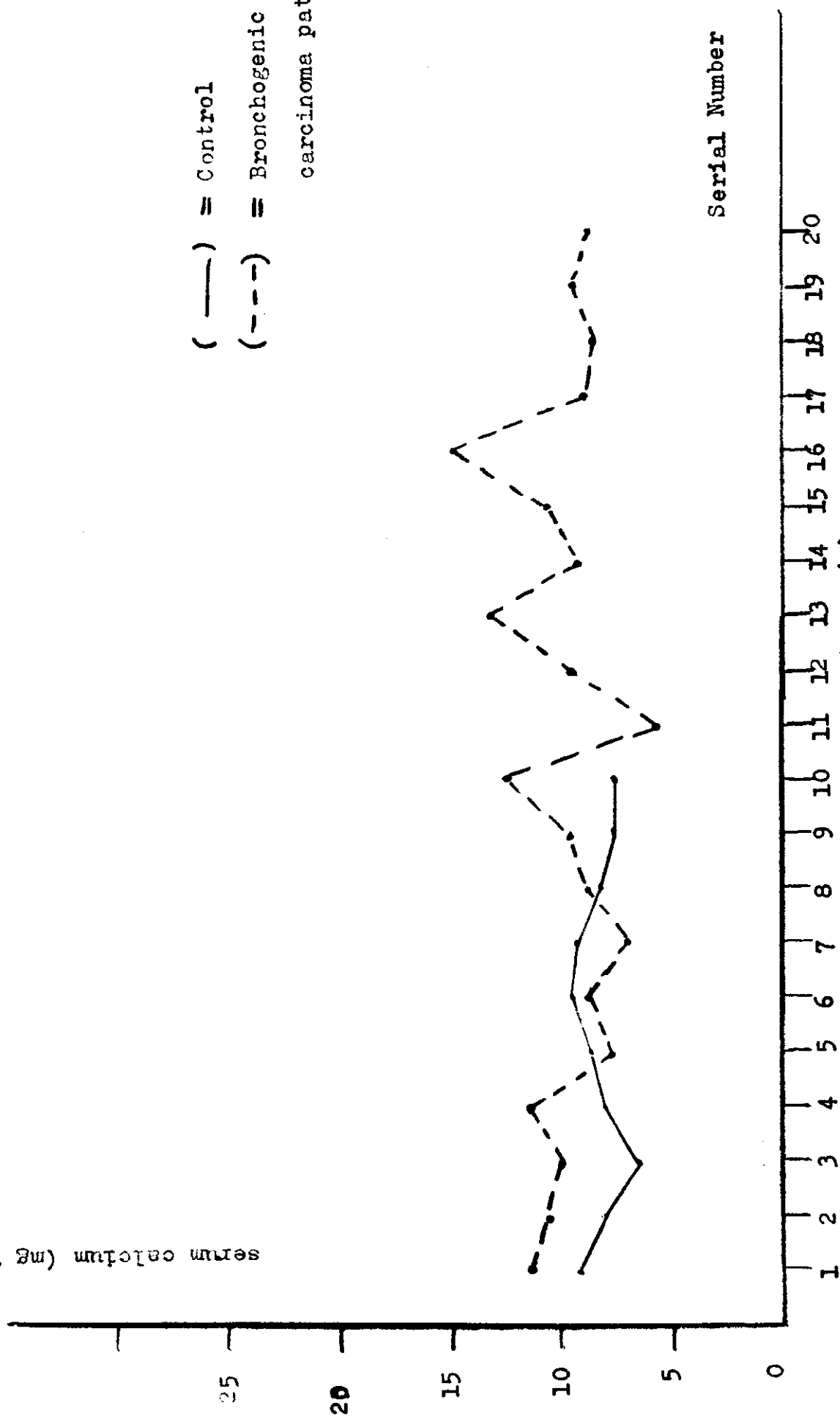


Figure (7)

Graphic illustration of serum calcium in control and bronchogenic carcinoma patients

Serial Number	Serum calcium
	mg %
1	10.16
2	8.5
3	11.9
4	15.1
5	8.9
6	9.8
7	10.9
8	9.3
9	12.6

Table (23)

Serum calcium levels in squamous-cell type
in (group A).

Range 8.5 - 15.1 mg %

Mean \pm SD 10.8 \pm 2.11

Mean \pm SE 10.8 \pm 3.6

P $<$ 0.0025 *** High significant with control.

Serial Number	Serum calcium mg %
1	7.8
2	8.7
3	13.7
4	8.8
5	7.4
6	9.8

Table (24)

Serum calcium levels in small cell type
in(group A).

Range 7.4 - 13.7 mg%

Mean \pm SD $9.36^{\circ} \pm 2.28$

Mean \pm SE $9.36^{\circ} \pm 3.821$

P > 0.05 | insignificant with control.

Serial Number	Serum calcium
	mg %
1	11.26
2	10.9
3	7.14
4	8.7
5	9.8

Table (25)

Serum calcium in adenocarcinoma type in
(group A) •

Range 8.7 - 11.26 mg %

Mean \pm SD 9.56 \pm 1.68

Mean \pm SE 9.56 \pm 4.275

P < 0.025 * significant with control.

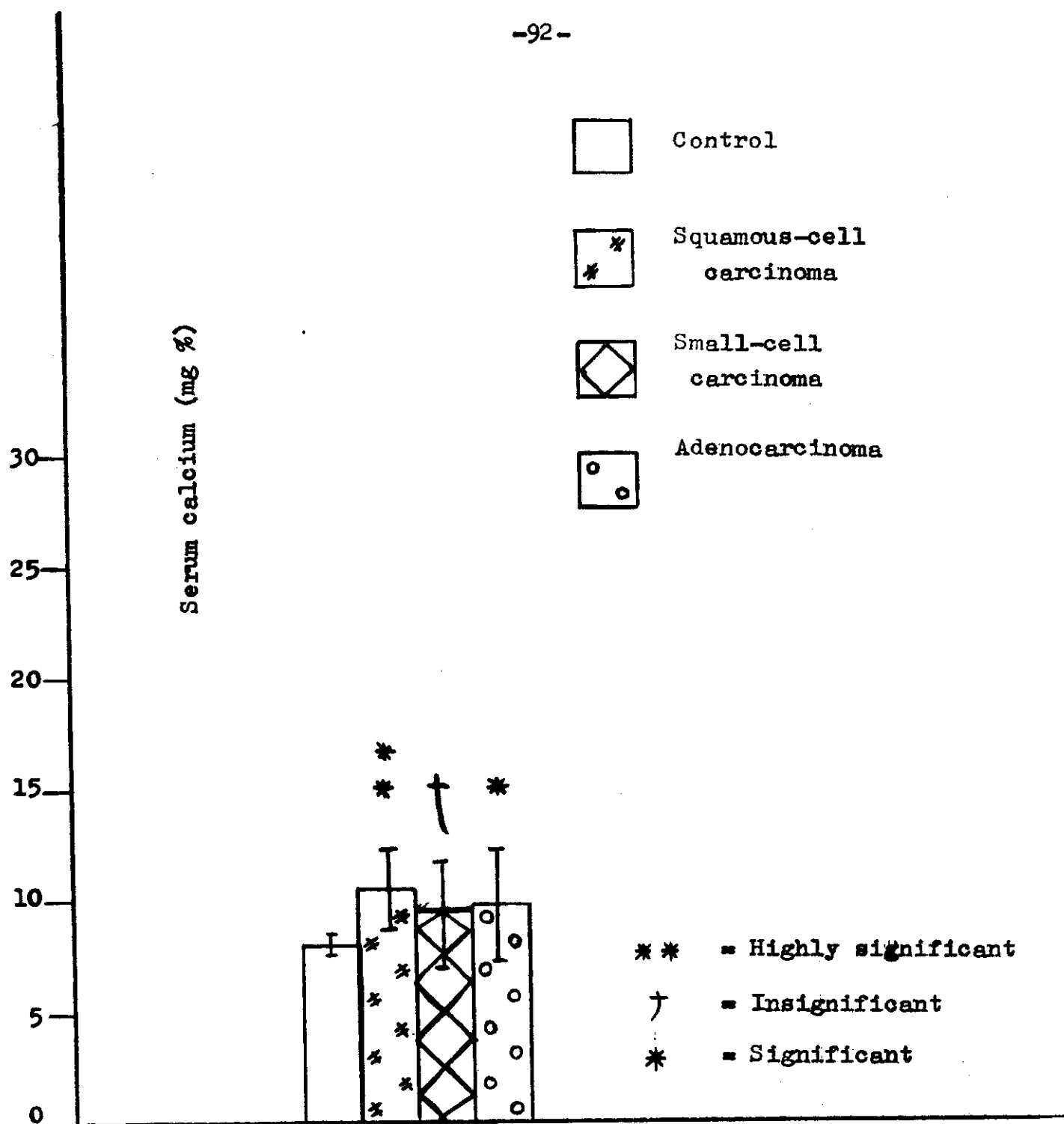


Figure (8)

Serum calcium level in the three pathological types compared with
The control .

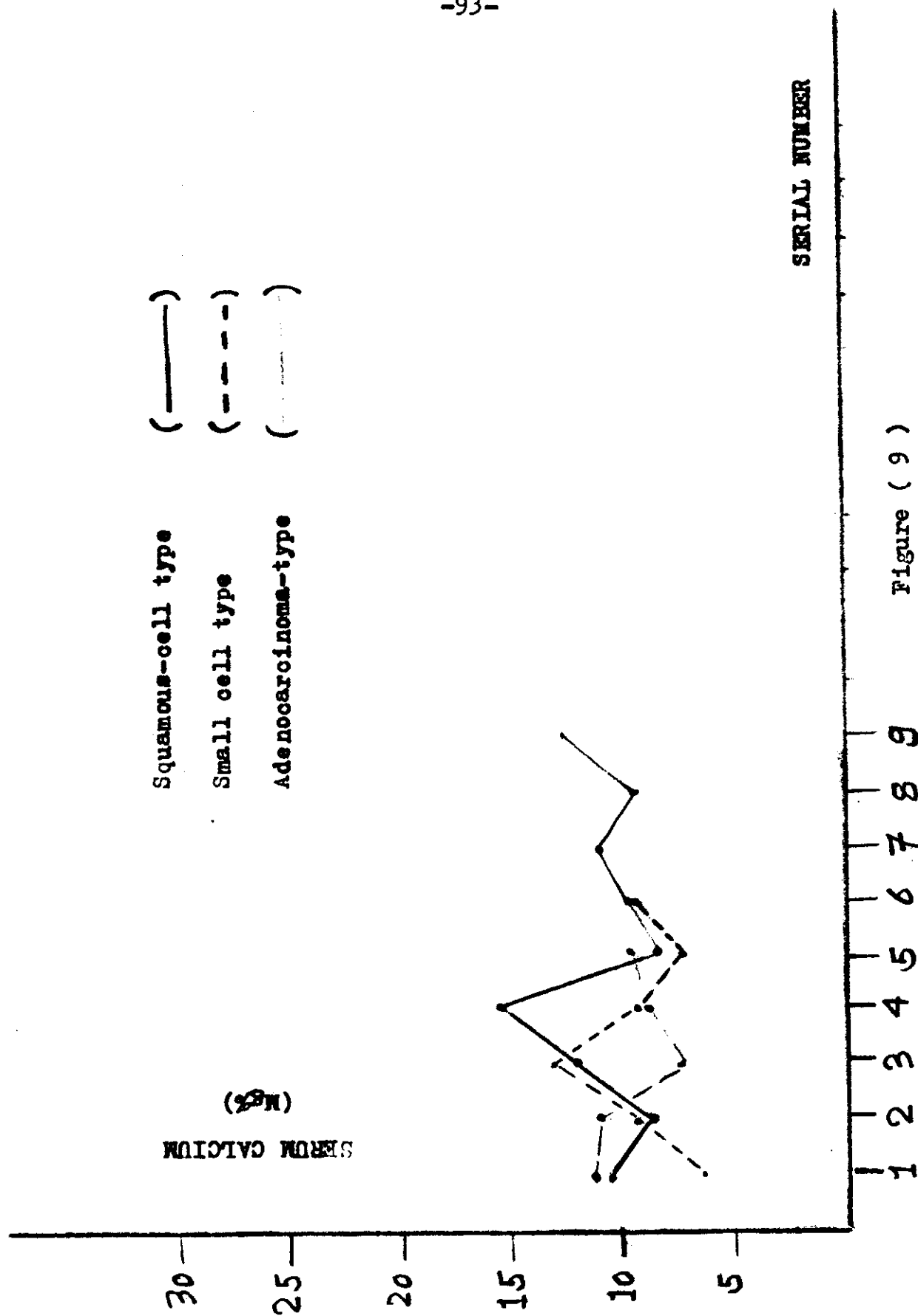


Figure (9)

Graphic illustration of serum calcium in the three pathological cell types

serum calcium mg %	control group	patients with broncho- genic carcinoma
Range	6.6 - 9.6	6.6 - 15.1
Mean	7.99	10.06
\pm SD	0.91	2.08
\pm SE	0.29	0.46
"t"		2.990
P		0.005 **

** = High significant.

Table (26)

Statistical comparison between patients with bronchogenic carcinoma and control group as regard to serum calcium.

Serum calcium mg %	control	squamous cell type	small cell type	adeno- carcinoma
Range	6.6 -9.6	8.5-15.1	7.4-13.7	8.7-11.26
Mean	7.99	10.8	9.36	9.56
\pm SD	0.91	2.11	2.28	1.68
\pm SE	0.92	0.70	0.93	0.75
"t"		3.836	1.675	2.379
P		$\leq 0.0025^{**}$	$> 0.05^{\dagger}$	$\leq 0.025^*$

** = High significant.

\dagger = insignificant.

* = significant.

Table (27)

Statistical comparison between serum level of calcium in squamous cell carcinoma small cell carcinoma and adenocarcinoma related to control group.

Studied groups	Serum calcium mg %
Squamous cell carcinoma in patients group A.	
Range	8.5 - 15.1
Mean	10.8
± SD	2.11
± SE	3.6
Small cell carcinoma in group A	
Range	7.4 - 13.7
Mean	9.36°
± SD	2.28
± SE	0.93
"t"	1.251
P	> 0.05 †

† = insignificant.

Table (28)

Statistical comparison between squamous cell carcinoma and small cell carcinoma in group (A) as regard to serum calcium.

Studied group	Serum calcium mg %
Squamous cell carcinoma in group (A)	
Range	8.5 - 15.1
Mean	10.8
\pm SD	2.11
\pm SE	3.6
Adenocarcinoma in group (A)	
Range	8.7 - 11.26
Mean	9.56
\pm SD	1.68
\pm SE	0.75
"t"	1.120
P	>0.1 †

† = insignificant.

Table (29)

Statistical comparison between squamous-cell carcinoma and adenocarcinoma in group (A) as regard to serum calcium.

Studied groups	Serium calcium mg %.
Adenocarcinoma in group (A)	
Range	8.5 - 15.1
Mean	10.8
\pm SD	2.11
\pm SE	3.6
Small-cell carcinoma in group (A)	
Range	7.4 - 14.7
Mean	9.360
\pm SD	2.28
\pm SE	0.93
"t"	0.162
P	> 0.4 †

† = Insignificant.

Table (30)

Statistical comparison between adenocarcinoma and small-cell carcinoma in (group A) as regard to serum calcium.

Pathological cell type	Serial Number	Serum Calcium mg %	
		Metastatic	Non metastatic
Squamous cell carcinoma	9	Range 8.5-12.6 Mean 10.6° \pm SD 2.061 "t" 3.2928 $p < .005^{***}$	Range 8.9-15.1 Mean 10.86 \pm SD 2.27 "t" 3.6085 $P < .0025^{***}$
Small cell Carcinoma	6	Range 7.8-13.7 Mean 10 \pm SD 2.60 "t" 2.234 $p < .025^*$	Range 7.4-8.8 Mean 8.1 \pm SD 0.99 "t" 0.154646 $P > 0.4^+$
Adeno - carcinoma	5	Range 7.14-11.26 Mean 9.3° \pm SD 2.08 "t" 1.644 $P > .05^+$	Range 9.8-10.9 Mean 10.35 \pm SD 0.77 "t" 3.3966 $P < .005^{***}$

Table (31)

Serum calcium level in metastatic and non metastatic types of the three pathological types in (group A) compared with the control.

Studied Groups	Age / Year			Serum calcitonin pg/ml.			Serum Calcium mg %		
	Range	Mean	± SD	Range	Mean	± SD	Range	Mean	± SD
Control Group	25-45	36.3	6.395	18-46.5	32.9	9.19	6.7-9.6	7.99	0.91
Patients with Bronchogenic carcinoma group	35-66	53.15	9.40	27-110	49.85	20.25	6.6-15.1	10.06	2.08
				$t_n = 21.676$ $P < 0.01$ $t_n = 2.990$ $P < 0.005$					
Small-cell type in group (A)	43-66	57	7.72	43-110	69	25.12	7.4-13.7	9.36	2.28
				$t_n = 4.180$ $P < 0.0005$ ***			$t_n = 1.675$ $P > 0.05$ † Metastatic value=10.0 Non metastatic = 8.1		
Squamous-cell type in group (A)	35-65	52.6	9.3	27-58	40	9.43	8.5-15.1	10.8	2.11
				$t_n = 1.714$ $P > 0.05$ †			$t_n = 3.836$ $P < 0.0025$ *** Metastatic value=10.6 Non metastatic =10.86		
Adenocarcinoma in group (A)	38-63	49.4	8.685	33-66	44.6	13.32	8.7-11.26	9.56	1.68
				$t_n = 21.009$ $P < 0.05$ *			$t_n = 1.120$ $P < 0.025$ * Metastatic value=9.3 Non metastatic =10.35		

Table (32)
 statistical comparison between control, patients group and the pathological cell types as regard to age, serum calcitonin and serum calcium.