

RESULTS

RESULTS

1- Carcinoembryonic Antigen (CEA):-

Table (5a) shows mean value $\pm$ S.E. of preoperative CEA levels in control subjects and patients with gastrointestinal malignancy. The mean serum level of CEA in cancer patients was significantly higher than that in controls.

Analysis of variance (ANOVA) test is performed to detect statistically significant difference between means of more than 2 groups. Table (5b) shows the relation between the preoperative CEA levels (ng\ml) and the stage of cancer. The F test value was 7.483 and there was a positive relation with the tumor stage at $P < 0.01$

Table (5c) shows the ANOVA test of preoperative CEA levels (ng\ml) between the 4 different tumor sites and there were no significant relation between the preoperative CEA levels and the site of gastrointestinal malignancies .

Table (5d) represent the ANOVA test of preoperative CEA levels (ng\ml) between the 3 different histopatological types in cancer patients and there were no significant relation between the preoperative marker level and the histopathological type of gastrointestinal cancer.

Table (5e) demonstrate the preoperative CEA levels (ng\ml) at different grades of the tumor and there was no significant relation between the grade of the tumor and preoperative CEA levels.

2- Alpha 1 - Acid Glycoprotein (AAG) :-

Table (6a) shows the mean value $\pm$ S.E. of preoperative AAG levels (u\l) in control subjects and patients with gastrointestinal malignancy. The mean serum AAG was significantly higher in cancer patients in comparison to control subjects.

Table (6b) represent the ANOVA test of preoperative AAG (u\l) between the different stages among cancer patients and there were no significant relation regarding cancer stage status.

Table (6c) shows the ANOVA test of preoperative AAG (u\l) between different cancer sites along the gastrointestinal tract. There were no significant relation with the gastrointestinal malignancy site .

Table (6d) illustrate the ANOVA test of preoperative AAG (u\l) between the 3 different histopathological types recorded in our study in gastrointestinal malignancy. There were a significant relation between the preoperative AAG and histopathological type. The F test value was 4.291 and positive relation at $P < 0.05$.

Table (6e) shows the preoperative AAG (u\l) between different grades of cancer and there were a significant relation with cancer grade at $P < 0.05$.

3- Alpha -1- Antitrypsine (AAT) :-

Table (7a) shows the mean value $\pm$ S.E of preoperative AAT (u\l) in control subjects and patients with gastrointestinal malignancy. The preoperative AAT levels were significantly higher from controls at $P < 0.01$.

Table (7b) demonstrate the ANOVA test of preoperative AAT (u\l) between the different stages in cancer patients and there were no significant relation with the tumor stage .

Table (7c) shows the ANOVA test of preoperative AAT (u\l) between different cancer sites along the gastrointestinal tract . There were no significant relation with the gastrointestinal malignancy site.

Table (7c) represent the ANOVA test of preoperative AAT (u\l) between the 3 different histopathological types recorded and there were no significant relation between the preoperative AAG and histopathological types .

Table (7e) demonstrate the ANOVA test of preoperative AAT (u\l) between different pathological grades in cancer patients and there were a significant relation with tumor grade at $P < 0.05$.

4- Tissue Polypeptide Antigen (TPA):-

Table (8a) shows the mean value $\pm$ S.E. of preoperative TPA values (UN) in control subjects and cancer patients. The mean serum level of TPA in cancer patients was significantly higher than that in controls.

Table (8b) shows the ANOVA test of preoperative TPA values (uN) between the different tumor stages and there were no significant relation with cancer stage .

Table (8c) represent the ANOVA test of preoperative TPA levels (uN) between the 4 different tumor sites and there were no significant relation at $P > 0.05$.

Table (8d) demonstrate the ANOVA test of preoperative TPA(uN) between the 3 different histopathological types recorded in our study in gastrointestinal malignancy. There were no significant relation between the preoperative TPA levels and histopathological types .

Table (8e) shows the mean values $\pm$ S.E of preoperative TPA (uN) in comparison to that in controls and there were no significant relation between the preoperative TPA and tumor grade .

5- Alkaline Phosphatase (ALP) :-

Table (9a) shows the preoperative ALP (K.A.U) in cancer patients comparing to its levels in controls .

Table (9b) represent ANOVA test of preoperative ALP (K.A.U) between different tumor stages and there were no significant relation with tumor stage .

Table (9c) illustrate ANOVA test of preoperative ALP (V.A.U) between different cancer sites. There were no significant relation with cancer site along the gastrointestinal tract.

Table (9d) shows the ANOVA test of preoperative ALP (K.A.U) between the different histopathological tumor types studied in gastrointestinal malignancy and there were no significant relation with tumor pathology.

Table (9e) represent preoperative serum ALP (V.A.U) in different grades of tumor pathology and there were no significant correlation with tumor grade.

Table (10) illustrate collective table for preoperative CEA, AAG, AAT, TPA in gastrointestinal malignancy in comparison to control subjects

6-Fast Homoarginine Sensitive Alkaline Phosphatases (FHAP):-

Overall Results :-

The FHAF fraction was never detected in the healthy control group. In contrast, it was detected in 18 cases out of 38 cases suffering from gastrointestinal malignancy (Table 11)

FHAP fraction in gastrointestinal malignancy

Table (12) shows that the frequency of FHAP fraction was 14.3% in cancer pharynx, 30% in cancer stomach, 45.5% in colorectal cancer and 90% in cancer oesophagus.

Table (13) demonstrate the prevalence of FHAP at different stages of gastrointestinal malignancy with the highest value among stage IV patients (Mean : 3.7 K.A.U) and lower value among stage II & stage III patients (Mean : 1.6 and 2.7 K.A.U. respectively).

In the pre operative estimation of FHAP, Regan isoenzyme was detected in one patient suffering from liver metastasis. The highest preoperative value of serum FHAP among patients with FHAP serum was detected in this patient.

In the follow up study, FHAP was shown to be persisted in the post-therapy samples in 3 cases, one of it develop recurrence with slight eleva-

tion of FHAP from preoperative value immediately before recurrence. and the second develop liver metastases with also slight elevation in its value. The third case showed unexplained persistence of FHAP.

7-Specificity, Sensitivity and Predictive values:-

Table (14, 15) illustrate the specificity, Sensitivity and predictive value of single marker and markers combination.

8- Survival Percentage

Table (16) represent the correlation between the preoperative levels with various markers and the survival percentage. survival % higher in cancer patients with no preoperative rise of CEA, AAG, AAT, TPA and ALP above the cut - off values than those showed preoperative rise.

Table (5a) The preoperative serum CEA levels (ng/ml) in cancer patients in comparison to its levels in control subjects

Group	No	Mean value (ng/ml)	± S.E.	t test value	P value
Control cases	20	1.45	± 0.14	0.02	P<0.05
Cancer patients	38	10.68	± 2.84		

Significant from controls at P<0.05

Table (5b) Analysis of variance (ANOVA) test of preoperative CEA levels (ng/ml) between different stages

Stage	No	Mean value (ng/ml)	± S.E.	F test value	P value
II	12	1.892	± 0.314	7.483	P< 0.01
III	11	4.345	± 1.044		
IV	15	22.367	± 6.117		

Significant relation with the tumor stage at P < 0.01

Table (5c) Analysis of variance (ANOVA) test of preoperative CEA levels (ng\ml) between different sites .

Cancer site	No	Mean (ng / ml)	± S.E.	F test value	P value
Pharynx	8	9.2	± 3.29	0.697	P>0.05
oesophagus	10	16.37	± 9.86		
Stomach	9	4.778	± 1.25		
Colorectal	11	11.427	± 3.40		

NON significant relation with tumor site at P>0.05

Table (5d) Analysis of variance (ANOVA) test of preoperative CEA levels (ng\ml) between different histopathological types

Cancer type	No	Mean (ng/ml)	± S.E.	F test value	P value
Squamous C.	14	5.85	± 2.08	0.904	P>0.05
Adenocarcinoma	21	13.2	± 4.74		
Undifferentiated C.	2	22.8	± 12.5		

Non significant relation with tumor pathology at P>0.05

Table (5e) preoperative CEA levels (ng\ml) between different grades .

Grade	No	Mean (ng/ml)	± S.E.	t test value	P value
II	20	11.485	± 5.04	0.654	>0.05
III	18	9.794	± 2.35		

NON significant relation with tumor grade at P>0.05

Table (6a) Preoperative serum AAG (uN) in cancer patients in comparison to its levels in control group

Group	No	Mean (U/L)	± S.E.	t test value	P value
Control cases	20	0.83	± 0.05	0.0001	P<0.01
cancer cases	38	1.76	± 0.01		

Significant From Controls at P<0.01

Table (6b) Analysis of variance (ANOVA) test of preoperative AAG (uN) between different stages

Stage	No	Mean (U/L)	± S.E.	F test value	P value
II	12	1.377	± 0.141	3.079	P>0.05
III	11	1.986	± 0.202		
IV	15	1.911	± 0.196		

Non significant relation with tumor stage at P>0.05

Table (6c) Analysis of variance (ANOVA) test of preoperative AAG (uN) between different sites

Cancer site	No	Mean (U/L)	± S.E.	F test value	P value
Pharynx	8	1.885	± 0.136	1.017	P>0.05
oesophagus	10	1.86	± 0.216		
Stomach	9	1.924	± 0.257		
Colorectal	11	1.458	± 0.241		

Non significant relation with tumor site at P>0.05

Table (6d) Analysis of variance (ANOVA) test of preoperative AAG (U/L) between different histopathological types

Cancer type	No	Mean (U/L)	± S.E.	F test value	P value
Squamous C.	14	1.838	± 0.144	4.291	P>0.05
Adenocarcinoma C.	21	1.626	± 0.156		
Undifferentiated C.	2	3.0	± 0		

Significant relation with tumor pathology at P<0.05

Table (6e) Analysis of variance (ANOVA) test of preoperative AAG (u/l) between different grades

Grade	No	Mean (U/L)	± S.E.	t test value	P value
II	20	1.535	± 0.15	2.26	P<0.05
III	18	2.019	± 0.152		

Non significant relation with tumor grade at P<0.05

Table (7a) Preoperative serum AAT (U/L) in cancer patients in comparison to its levels in control group

Group	No	Mean (U/L)	± S.E.	t test value	P value
Control cases	20	1.9	± 0.16	5.65	P<0.01
Cancer Patients	38	3.58	± 0.19		

Significant From controls at P<0.01

Table (7b) Analysis of variance (ANOVA) test of preoperative AAT (uL) between different stages

Stage	No	Mean (U/L)	± S.E.	F test value	P value
II	12	3.015	± 0.264	2.156	P>0.05
III	11	3.995	± 0.346		
IV	15	3.725	± 0.356		

No significant relation with tumor stage at P>0.05

Table (7c) Analysis of variance (ANOVA) test of preoperative AAT (UL) between different sites

Cancer site	No	Mean (U/L)	± S.E.	F test value	P value
Pharynx	8	3.985	± 0.551	0.458	P>0.05
oesophagus	10	3.3/3	± 0.165		
Stomach	9	3.626	± 0.426		
Colorectal	11	3.487	± 0.43		

Non significant relation with tumor site at P>0.05

Table (7d) Analysis of variance (ANOVA) test of preoperative AAT (UL) between different histopathological types

Cancer type	No	Mean (U/L)	± S.E.	F test value	P value
Squamous	14	3.734	± 0.333	0.349	P>0.05
Adenocarcinoma C.	21	3.529	± 0.283		
Undifferentiated C.	2	2.98	± 0.13		

No significant relation with tumor pathology at P<0.05

Table (7e) Analysis of variance (ANOVA) test of preoperative AAT (u\l) between different grades

Grade	No	Mean (U/L)	± S.E.	t test value	P value
II	20	3.185	± 0.194	2.206	P<0.05
III	18	4.017	± 0.334		

Significant relation with tumor grade at P<0.05

Table (8a) Preoperative serum TPA levels (U\l) in cancer patients in comparison to its levels in control group

Group	No	Mean (U/L)	± S.E.	t test value	P value
Control Cases	20	45.09	± 2.19	2.18	P<0.05
Cancer Patients	38	103.59	± 19.27		

Significant From controls at P>0.05

Table (8b) Analysis of variance (ANOVA) test of preoperative TPA lenels (u\l) between different stages

Stage	No	Mean (U/L)	± S.E.	F test value	P value
II	12	112.39	± 46.019	0.047	P>0.05
III	11	101.20	± 38.325		
IV	15	98.319	± 19.496		

No significant relation with tumor stage at P>0.05

Table (8c) Analysis of variance (ANOVA) test of preoperative TPA levels (U/L) between different sites

Cancer site	No	Mean (U/L)	± S.E.	F test value	P value
Pharynx	8	66.046	± 11.92	0.378	P>0.05
oesophagus	10	100.991	± 42.89		
Stomach	9	116.281	± 23.12		
Colorectal	11	122.655	± 51.64		

No significant relation with tumor site at P>0.05

Table (8d) Analysis of variance (ANOVA) test of preoperative TPA levels (U/L) between different histopathological types

Cancer type	No	Mean (U/L)	± S.E.	F test value	P value
Squamous C.	14	89.659	± 30.238	0.205	P>0.05
Adenocarcinoma C.	21	109.168	± 28.035		
Undifferentiated C.	2	155.11	± 90.89		

No significant relation with tumor pathology at P<0.05

Table (8e) Analysis of variance (ANOVA) test of preoperative AAT (uL) between different grades

Grade	No	Mean (U/L)	± S.E.	t test value	P value
II	20	101.985	± 29.02	0.087	P>0.05
III	18	105.39	± 25.70		

No significant relation with tumor grade at P>0.05

Table (9a) Preoperative serum ALP (K.A.U.) in cancer patients in comparison to its levels in control group

	Normal Level of Total ALP		Increased Level of Total ALP		Total	
	No.	%	No.	%	No.	%
Cancer patients	33	86.8	5	13.2	38	100
Control cases	20	100	0	0	20	100
Total	53	91.4	5	8.6	58	100

Table (9b) Analysis of variance (ANOVA) test of preoperative ALP (K.A.U) between different stages .

Stage	No	Mean (K.A.U)	± S.E.	F test value	P value
II	12	8.25	± 1.1	1.614	0.213
III	11	9.291	± 1.08		
IV	15	13.667	± 3.208		

No significant relation with tumor stage at $P>0.05$

Table (9c) Analysis of variance (ANOVA) test of preoperative ALP (K.A.U) between different sites

Cancer site	No	Mean (K.A.U)	± S.E.	F test value	P value
Pharynx	8	10.312	± 1.56	0.621	$P>0.05$
oesophagus	10	11.52	± 1.50		
Stomach	9	7.611	± 0.84		
Colorectal	11	12.72	± 4.418		

No significant relation with tumor site at $P>0.05$

Table (9d) Analysis of variance (ANOVA) test of preoperative ALP (K.A.U) between different histopathological types

Cancer type	No	Mean (K.A.U)	± S.E.	F test value	P value
Squamous C.	14	10.693	± 1.263	0.171	P>0.05
Adenocarcinoma C.	21	11.262	± 2.351		
Undifferentiated C.	2	7.5	± 1.5		

No significant relation with tumor pathology at P>0.05

Table (9e) Analysis of variance (ANOVA) test of preoperative ALP (K.A.U) between different grades

Grade	No	Mean (K.A.U)	± S.E.	t test value	P value
II	20	10.475	± 0.925	0.162	P>0.05
III	18	10.928	± 2.77		

No significant relation with tumor grade at P>0.05

Table (10) Collectine table for preoperative CEA, AAG, AAT and TPA in cancer patients in comparison to Control cases .

	Case			Control			t value	p value
	No	x	± S.E	No	x	± S.E		
CEA (ng/ml)	38	10.68	± 2.84	20	1.45	± 0.143	2.34	0.02
AAG (U/L)	38	1.76	± 0.11	20	0.83	± 0.05	5.8	0.000
AAT (U/L)	38	3.57	± 0.19	20	1.9	± 0.16	5.65	0.000
TPA (U/L)	38	103.5	± 19.27	20	45.09	± 2.19	2.18	0.03

Table (11) The frequency of FHAP Fraction in control and cancer cases.

	Control Cases		Cancer Cases		Total	
	No	%	No.	%	No.	%
No of + ve FHAP cases	0	0	18	47.4%	18	31%
No of - ve FHAP cases	20	100	20	52.6%	40	69%

Table (12) The Frequency of FHAP Fraction among gastrointestinal malignancy From defferent sites .

Cancer site	No of patients with+ve FHAP		No of patients with-ve FHAP		Total No of patients
	No	%	No.	%	
Pharynx	1	14.3%	6	85.7%	7
oesophagus	9	90%	1	10%	10
Stomach	3	30%	7	70%	10
Colorectal	5	45.5%	6	54.5%	11
Total	18	47.4%	20	52.6%	38

Table (13) The prevelance of FHAP fraction at different tumor stages

Stage	No of patients with+ve FHAP sera		No of pt.with -ve FHAP sera		Total No of pt.
	No	%	No.	%	
II	5	41.7%	7	38%	12
III	5	45.5%	6	54.5%	11
IV	8	53.3%	7	46.7%	15
Total	18		20		38

Table (14) The sensitivity and specificity of single marker and markers combination

Marker (s)	Sensitivity	specificity
CEA (cut-off value 2.5 ng/ml)	68.42 %	100%
AAG (cut-off value 1.38 u/L)	73.68 %	100%
AAT (cut-off value 3.6 u/L)	39.47 %	100%
TPA (cut-off value 69.9 u/L)	47.37 %	100%
FHAP	47.4 %	100%
CEA + AAG	86.8 %	100%
CEA + TPA	81.6 %	100%
CEA + AAT	78.9 %	100%
CEA + FHAP	81.6 %	100%
CEA + AAG + TPA	92.1 %	100%
CEA + AAG + AAT + TPA	92.1 %	100%
** CEA + AAG + TPA + FHAP	94.7 %	100%
** The best combination of marker		

Table (15) Positive and negative predictive values

	+ve predictive value	-ve predictive value
CEA	100%	62.5 %
AAG	100%	66.67 %
AAT	100%	46.5 %
TPA	100%	50 %
FHAP	100%	50 %

(2 years) - 112 -

Table (16) showed the survival % in cancer patients with and without preoperative elevation of the marker

Preoperative level of marker	No of Patients	No of pt. survived	Survival
Patients with preoperative CEA > 2.5 ng/ml	26	5	19.2 %
Patients with preoperative CEA < 2.5 ng/ml	12	6	33.3 %
Patients with preoperative AAG > 1.38 u/l	28	5	17.9 %
Patients with preoperative AAG < 1.38 u/l	10	5	50 %
Patients with preoperative AAT > 3.6 u/l	15	4	26.7 %
Patients with preoperative AAT < 3.6 u/l	23	7	30.4 %
Patients with preoperative TPA > 69.9 u/l	18	5	27.8 %
Patients with preoperative TPA < 69.9 u/l	20	6	30 %
Patients with + ve FHAP serum	17	4	23.5 %
Patients with - ve FHAP serum	21	7	33.3 %

Table (17) shows patients age, sex, smoking habits, pretherapy and posttherapy CEA levels, follow up interval and patient status at its end .

patient	Pretreatment CEA (ng/ml)	t _{tt}	CEA (ng/ml)		interval after diagnosis	Present status
			Month	Posttherapy		
1.48 M	3.6	S.RT	1.6	1.6	16	Alive
2.35 F *	8.0	S.RT			2	Dead
3.55 M	1.0	S	0.8	0.7	12	Alive
4.32 F *	8.7	S.RT			3	Dead
5.37 N	10.7	S			2	Dead
6.50 F *	10.7	S.RT	8		7	Alive,Rec
7.20 M	0.9	S			2	Unknown
8.27 M	30.0	S.RT			1	Dead
9.54 M	35.3	S			1	Dead
10.55 M #	100.0	S.RT			1	Dead,Co
11.50 M	0.8	S			1/2	Unknown
12.51 M	1.0	S			1	Alive
13.55 F *	5.5	S	5.3	1	12	Dead
14.42 M	0.8	S.RT			9	Alive
15.55 M	2.8	S			12	Unknown
16.45 M	3.3	S.RT	1.2	1.0	2	Dead
17.60 F *	2.9	S.RT			2	Dead
18.50 F *	11.3	S			1.5	Alive
19.48 F *	1.2	S.C			12	Dead
20.55 M	0.6	S.RT			2	Dead
21.45 F *	10.3	S			1	Alive
22.45 M	2.8	S.C	0.8	0.5	16	Unknown
23.55 M	1.6	S			2	Dead
24.25 M	7.2	S			3	Dead
25.40 M	10.5	S			2	Dead
26.25 F *	4.3	S.C			3	Unknown
27.25 F *	4.5	S			1	Dead
28.25 F *	1.7	S	1.8	1.6	16	Alive
29.40 M	3.8	S.RT	1.6	1.8	16	Alive
30.55 F *	21.1	S			2	Dead
31.25 F *	22.7	S			2	Dead
32.40 M	32.4	S			1.5	Dead
33.38 F *	1.3	S.RT			2	Dead
34.40 F *	7.5	S.C			2	Dead, M
35.27 M	1.4	S	1.5		24	Alive
36.30 F *	8.7	S.RT			3	Dead
37.26 M	1.8	S.RT	1.5	2.9	12	Alive,Rec
38.70 F *	23.3	S	17.3		3	Dead M.

* Nonsmoker

Death 2 ry to operative Complication

RT = Readiation therapy, S = surgery

C = Chemotherapy, Rec. = Recurrence

M = Metastses

Table (18) shows patients age, sex, smoking habits, pretherapy and posttherapy TPA levels, follow up interval and patient status at its end .

patient	Pretreatment TPA (U/l)	III	TPA (U/l)		interval after diagnosis	Present status
			Month	Posttherapy		
1.48 M	67.0	S.RT	43.07	34.07	16	Alive
2.35 F *	71.8	S.RT	62.58	41.63	2	Dead
3.55 M	111.82	S			12	Alive
4.32 F *	34.07	S.RT			3	Dead
5.37 N	55.35	S			2	Dead
6.50 F *	34.07	S.RT	34.0		7	Alive,Rec
7.20 M	35.68	S			2	Unknown
8.27 M	118.55	S.RT			1	Dead
9.54 M	64.22	S			1	Dead
10.55 M #	160.0	S.RT			1	Dead,Co
11.50 M	34.07	S			1/2	Unknown
12.51 M	34.07	S			1	Alive
13.55 F *	34.0	S	40.6	34.0	12	Dead
14.42 M	43.9	S.RT			9	Alive
15.55 M	111.48	S	92.86	34.07	12	Unknown
16.45 M	36.41	S.RT			2	Dead
17.60 F *	46.79	S.RT			2	Dead
18.50 F *	467.0	S			1.5	Alive
19.48 F *	78.74	S.C			12	Dead
20.55 M	147.13	S.RT			2	Dead
21.45 F *	246.0	S			1	Alive
22.45 M	81.7	S.C	81.7	52.7	16	Unknown
23.55 M	118.04	S			2	Dead
24.25 M	181.05	S			3	Dead
25.40 M	119.9	S			2	Dead
26.25 F *	136.6	S.C			3	Unknown
27.25 F *	43.07	S			1	Dead
28.25 F *	121.39	S	62.14	47.52	16	Alive
29.40 M	63.4	S.RT	62.9	70.7	16	Alive
30.55 F *	102.4	S			2	Dead
31.25 F *	37.03	S			2	Dead
32.40 M	226.6	S			1.5	Dead
33.38 F *	34.07	S.RT			2	Dead
34.40 F *	607.8	S.C			2	Dead, M
35.27 M	36.37	S	30.0		24	Alive
36.30 F *	34.07	S.RT			3	Dead
37.26 M	34.07	S.RT	94.8	72.6	12	Alive,Rec
38.70 F *	52.0	S	610		3	Dead M.

* Nonsmoker

Death 2 ry to operative Complication

RT = Radiation therapy, S = surgery
C = Chemotherapy, Rec. = Recurrence
M = Metastases

Table (19) shows patients age, sex, smoking habits, pretherapy and posttherapy AAG levels, follow up interval and patient status at its end .

patient	Pretreatment AAG (U/l))	t _{tt}	AAG (U/l)		interval after diagnosis	Present status
			Month	Posttherapy		
1.48 M	1.58	S.RT	2.39	1.17	16	Alive
2.35 F *	2.65	S.RT			2	Dead
3.55 M	1.91	S	1.08	0.73	12	Alive
4.32 F *	1.47	S.RT			3	Dead
5.37 N	2.2	S			2	Dead
6.50 F *	1.91	S.RT	1.8		7	Alive,Rec
7.20 M	1.68	S			2	Unknown
8.27 M	1.68	S.RT			1	Dead
9.54 M	3.0	S			1	Dead
10.55 M #	1.69	S.RT			1	Dead,Co
11.50 M	1.08	S			1/2	Unknown
12.51 M	0.81	S			1	Alive
13.55 F *	1.67	S	1.58	1.47	12	Dead
14.42 M	1.91	S.RT			9	Alive
15.55 M	1.58	S	1.68	1.58	12	Unknown
16.45 M	2.27	S.RT			2	Dead
17.60 F *	2.8	S.RT			2	Dead
18.50 F *	1.79	S			1.5	Alive
19.48 F *	1.17	S.C			12	Dead
20.55 M	2.9	S.RT			2	Dead
21.45 F *	3.0	S			1	Alive
22.45 M	0.81	S.C			16	Unknown
23.55 M	1.91	S			2	Dead
24.25 M	1.8	S			3	Dead
25.40 M	2.5	S			2	Dead
26.25 F *	2.0	S.C			3	Unknown
27.25 F *	1.28	S			1	Dead
28.25 F *	0.5	S	2.02	1.08	16	Alive
29.40 M	0.73	S.RT	0.9	1.08	16	Alive
30.55 F *	0.65	S			2	Dead
31.25 F *	1.67	S			2	Dead
32.40 M	3.4	S			1.5	Dead
33.38 F *	1.68	S.RT			2	Dead
34.40 F *	1.47	S.C			2	Dead, M
35.27 M	1.79	S	0.73		24	Alive
36.30 F *	1.08	S.RT			3	Dead
37.26 M	1.27	S.RT	1.08	0.65	12	Alive,Rec
38.70 F *	1.8	S	1.8		3	Dead M.

* Nonsmoker

Death 2 ry to operative Complication

RT = Readiation therapy, S = surgery

C = Chemotherapy, Rec. = Recurrence

M = Metastses

Table (20) shows patients age, sex, smoking habits, pretherapy and posttherapy AAT levels, follow up interval and patient status at its end .

patient	Pretreatment AAT (U/l))	t _{tt}	AAT (U/l)		interval after diagnosis	Present status
			Month	Posttherapy		
1.48 M	3.11	S.RT	2.72	2.72	16	Alive
2.35 F *	3.81	S.RT			2	Dead
3.55 M	3.38	S	3.81	2.0	12	Alive
4.32 F *	3.11	S.RT			3	Dead
5.37 N	5.18	S			2	Dead
6.50 F *	3.66	S.RT	3.38		7	Alive,Rec
7.20 M	2.35	S			2	Unknown
8.27 M	7.28	S.RT			1	Dead
9.54 M	3.11	S			1	Dead
10.55 M #	3.66	S.RT			1	Dead,Co
11.50 M	2.6	S			1/2	Unknown
12.51 M	3.25	S			1	Alive
13.55 F *	3.11	S	3.11	2.12	12	Dead
14.42 M	2.85	S.RT			9	Alive
15.55 M	3.95	S	4.2	1.25	12	Unknown
16.45 M	4.25	S.RT			2	Dead
17.60 F *	3.95	S.RT			2	Dead
18.50 F *	2.85	S			1.5	Alive
19.48 F *	3.66	S.C			12	Dead
20.55 M	6.91	S.RT			2	Dead
21.45 F *	2.85	S			1	Alive
22.45 M	3.66	S.C	3.95	2.0	16	Unknown
23.55 M	2.6	S			2	Dead
24.25 M	2.85	S			3	Dead
25.40 M	2.85	S			2	Dead
26.25 F *	3.11	S.C			3	Unknown
27.25 F *	3.14	S			1	Dead
28.25 F *	2.35	S	1.89	1.67	16	Alive
29.40 M	2.6	S.RT	2.6	2.48	16	Alive
30.55 F *	3.11	S			2	Dead
31.25 F *	2.12	S			2	Dead
32.40 M	3.12	S			1.5	Dead
33.38 F *	5.18	S.RT			2	Dead
34.40 F *	5.18	S.C			2	Dead,M
35.27 M	1.46	S	2.12		24	Alive
36.30 F *	4.25	S.RT			3	Dead
37.26 M	3.14	S.RT	3.25	3.25	12	Alive,Rec
38.70 F *	5.85	S	5.8		3	Dead M.

* Nonsmoker

Death 2 ry to operative Complication

RT = Readiation therapy, S = surgery
C = Chemotherapy, Rec. = Recurrence
M = Metastases

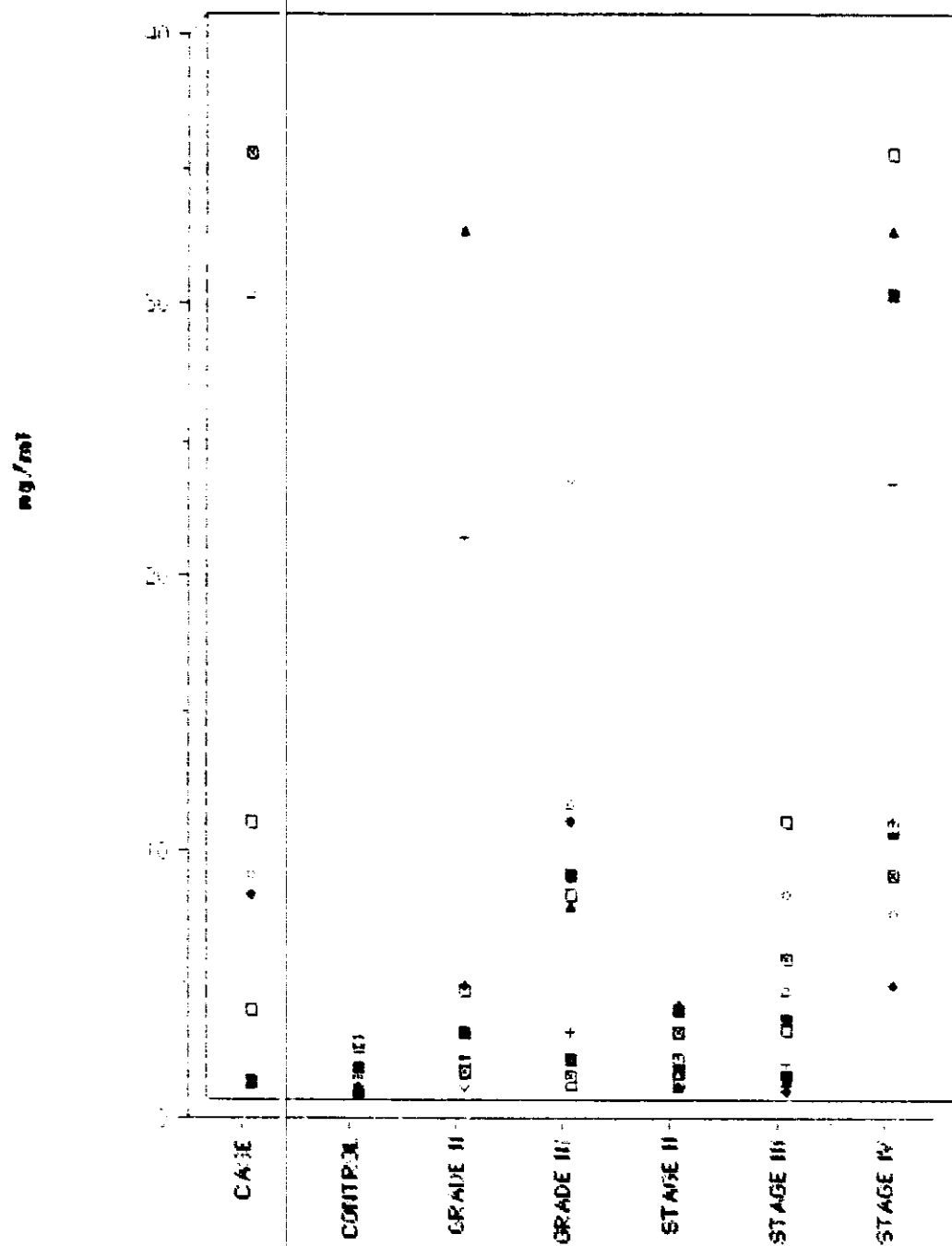


Fig. (5) : Scatter diagram showed CEA levels in Control, cancer patients, different stages & grades .

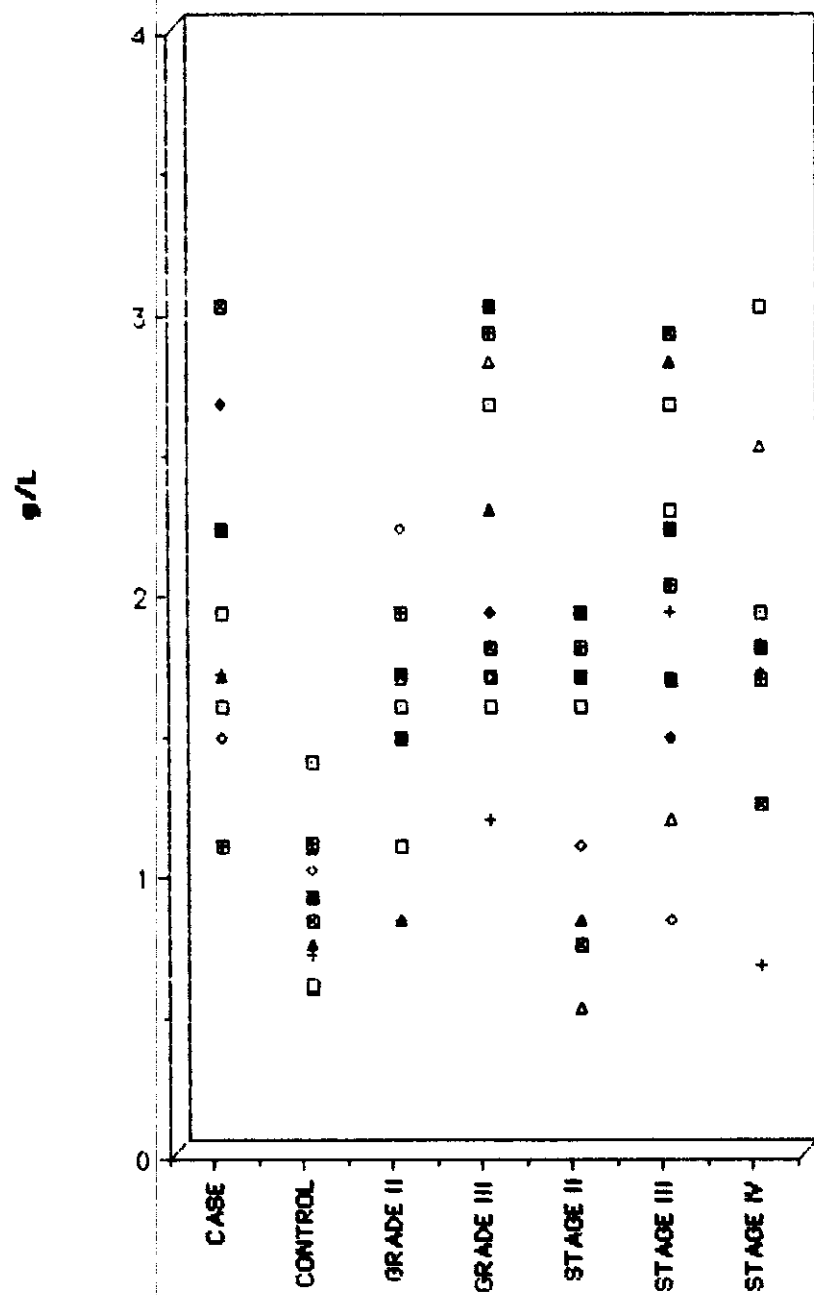


Fig. (6) : Scatter diagram showed AAG levels in Control, cancer patients, different stages & grades .

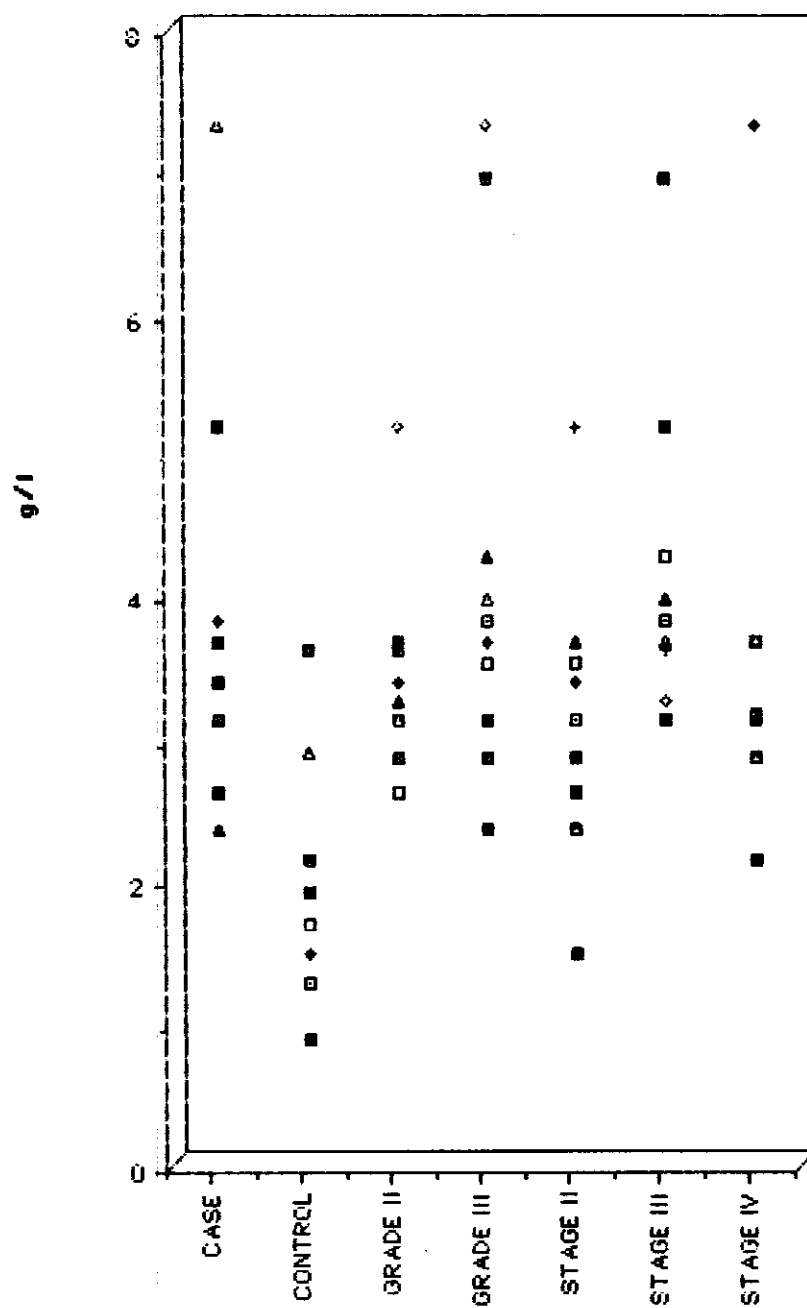


Fig. (7) : Scatter diagram showed AAT levels in Control, cancer patients, different stages & grades .

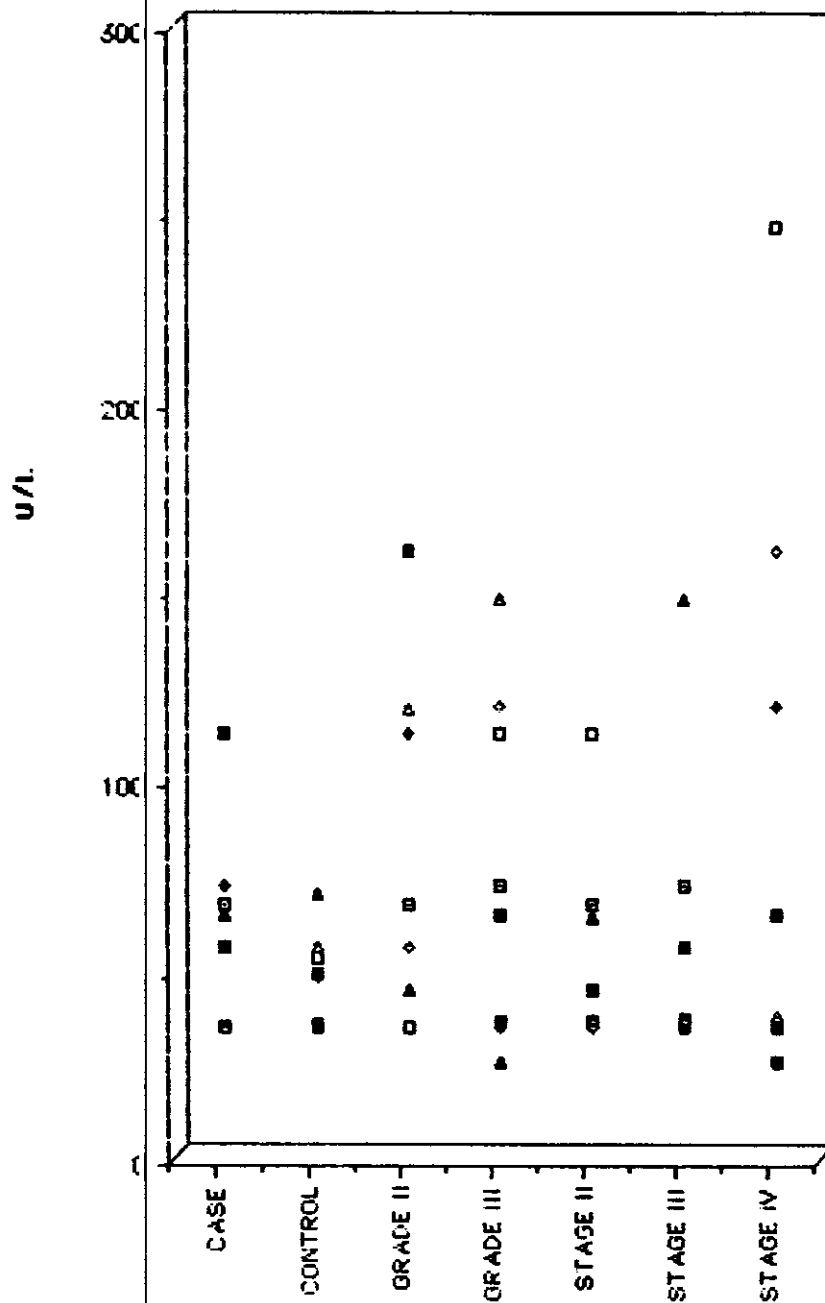


Fig. (8) : Scatter diagram showed TPA levels in Control, cancer patients, different stages & grades .

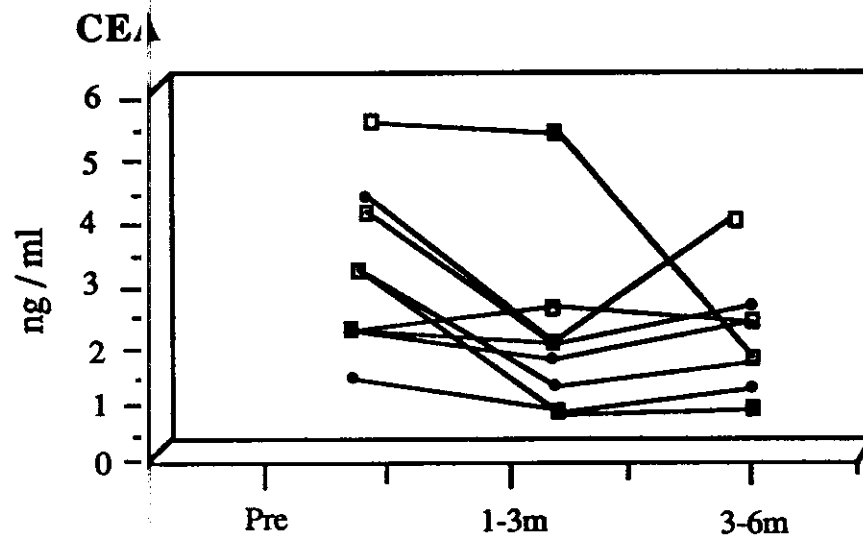


Fig. (9) : CEA levels in cancer patients during follow up interval .

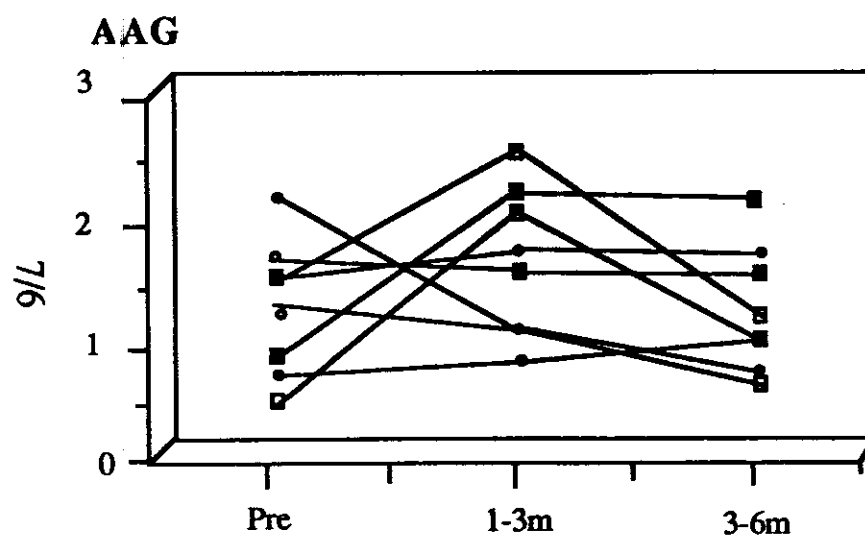


Fig. (10) : AAG levels in cancer patients during follow up interval .

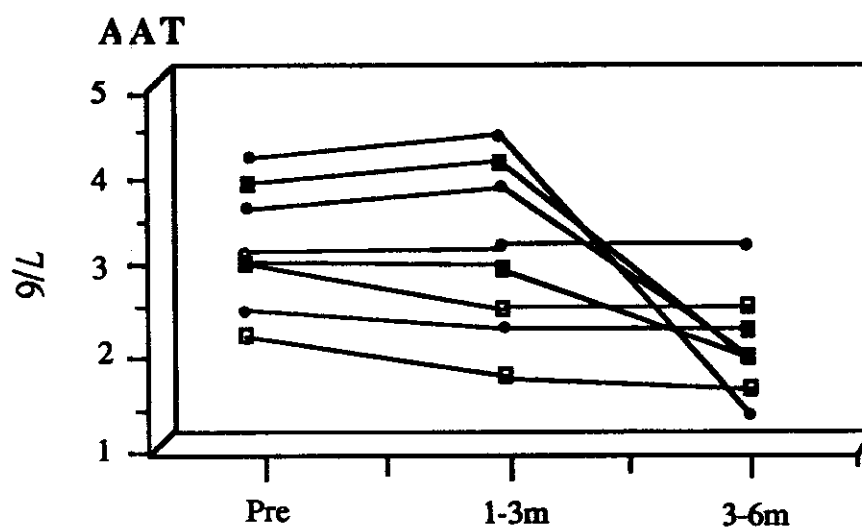


Fig. (11) : AAT levels in cancer patients during follow up interval .

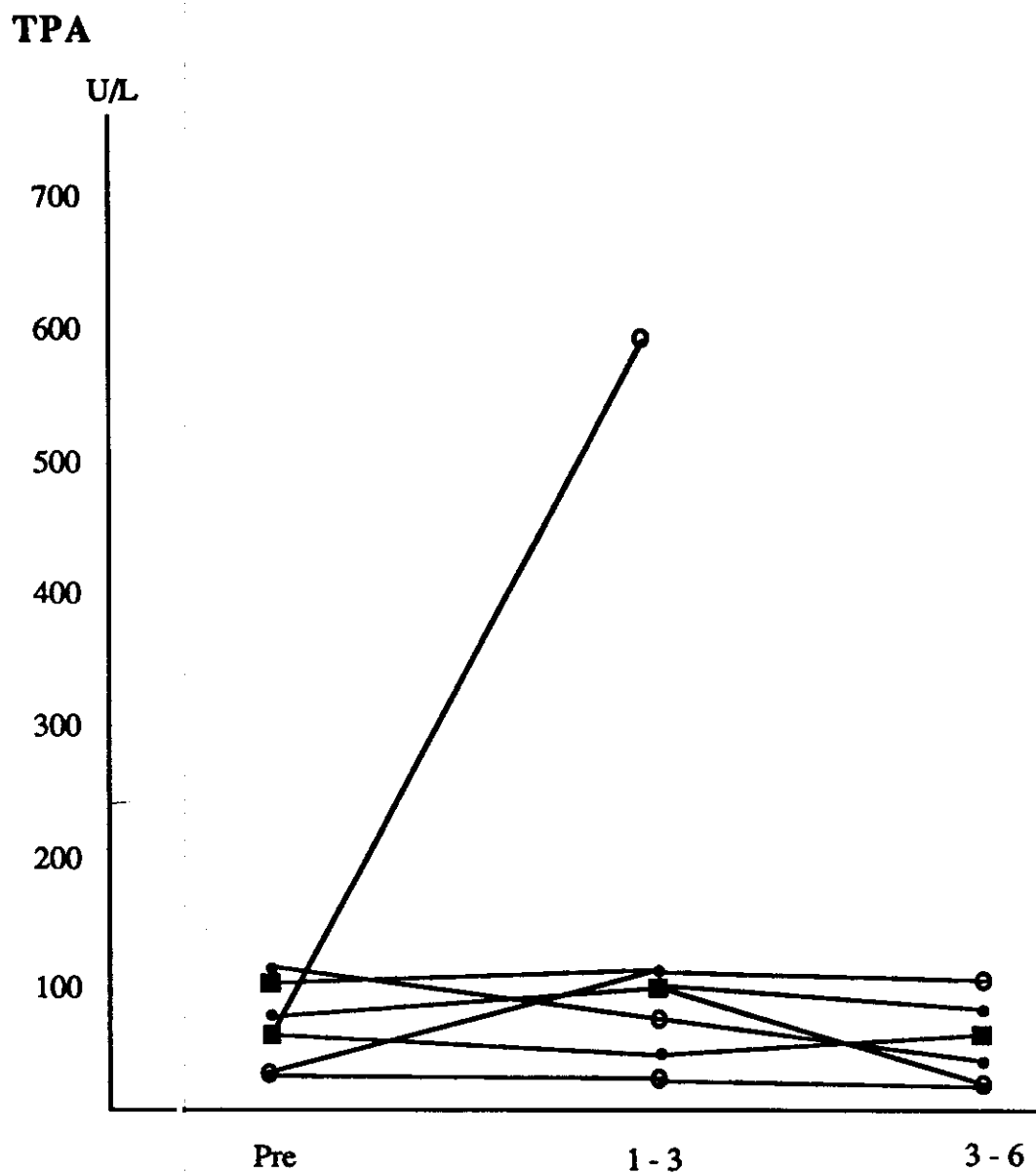


Fig. (12) : TPA levels in cancer patients during follow up interval .

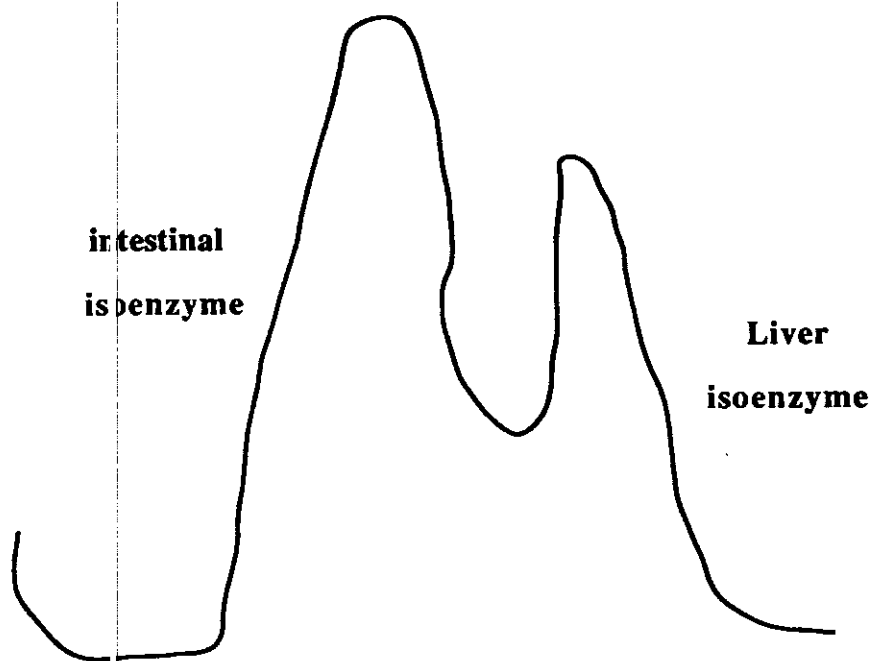


Fig. (13) : Electrophoresis of control serum showed intestinal and liver isoenzymes .

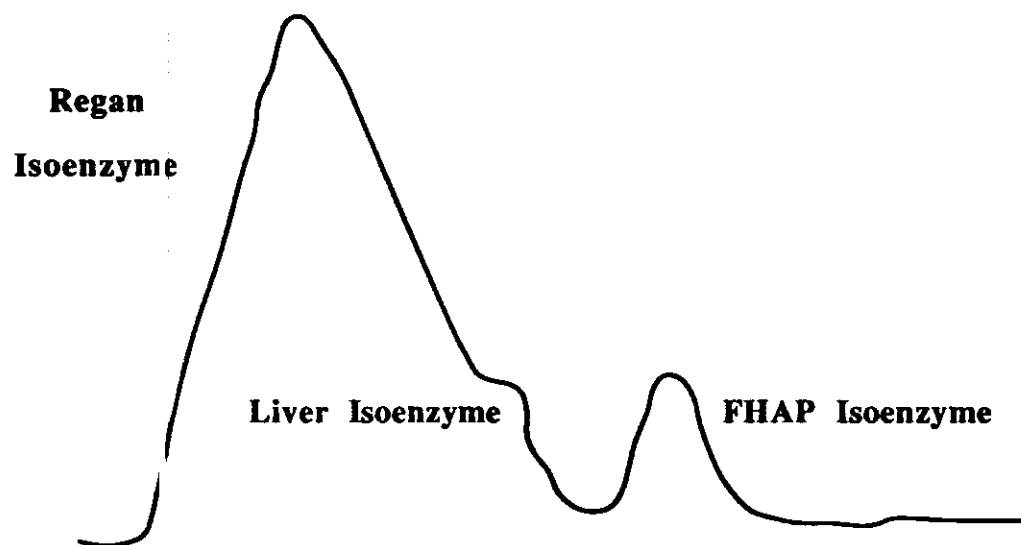


Fig. (14) : Showed Regan, liver and FHAP isoenzymes .