CHAPTER IV

R E S U L T S

RESULTS

As shown in table 1 selected six patients had cancer oesophagus, six post.cricoid carcinoma, six cancer bladder, three cancer tongue, two cancer stomach, two retroperitoneal sarcoma, one hypernephroma, one carcinoma of the larynx, one malignant maxilla, one ca. ovary and one metastatic carcinoma of unkown site.

TABLE .1. DIAGNOSIS OF THE CHOSEN CASES

DIAGNOSIS	No. OF PATIENTS
Cancer oesophagus	6
Post. ciricoid carcinoma	6
Cancer bladder	6
Cancer tongue	3
Cancer stomach	2
Retroperitoneal sarcoma	2
Hypernernephroma	1
Cancer larynx	1
Cancer maxilla	1
Cancer ovary	1
Metastatic carcinoma of unkuown site	1
Total	30

Significant protein caloric malnutrition (P.C.M.) of both moderate and severe degrees was identified by the criteria of weight / height, triceps skin (T.S.F), muscle circumference (A.M.C.), creatinine height index (C.H.I.), serum albumin and lymphocytic count . As shown in Table 2, interesting differences emerged depending on the measure chosen. Weight for height indicates 43.3% severe, 40% moderate P.C.M. for a total of 83.3% from all cases. Arm muscle circumference showed 26.6% severe and 56.6% moderate P.C.M. for a total of 83% which is equal to that of weight loss. Triceps skin fold suggested the greatest prevalence of severe P.C.M. (90%) and 10% moderate with a total of 100%. Creatinine height index revealed 66.6% severe and 10% moderate P.C.M. for a total of 76.6% which is the smallest prevalance of severe and moderate P.C.M. but it follows T.S.F. in severity.

TABLE 2. RESULTS OF EVALUATION OF SOMATIC PROTEIN COMPARTMENT BY NUMBER AND PERCENTILE CLASSIFICATION

	WEIGHT/ HEIGHT		TRICEPS SKIN FOLD		ARM MUSCLE CLRCUMFERENC		CREATININE HELGHT INDEX	
	No	%	No	%	No	%	No	%
Severe o	13	43.3	27	90%	8	26.6	20	66.6
Moderate oo	12	40.0	3	10	18	65.6	3	10
Mild ooo	5	16.6	0	0	4	16.6	0	0
Adequate	0	0	0	0	0	0	7	23.3
Total	30	100	30	100	30	100	30	100

o Severe : ;30% of deficit

oo Moderate : between 15-30% of deficit

ooo Mild : between 5-15% of deficit

TABLE 3. RESULTS OF EVALUATION OF VISCERAL PROTEIN COMPARTMENT BY NUMBER AND PCRCENTILE CLASSIFICATION

	oSerun Albunin		oo Lymphocytic count	
	No	%	No	%
Severe	4	13.3	3	10
Moderate	11	36.6	10	33.3
Mild	9	30.0	5	16.6
Adequate	6	20	12	40.0
Total	30	100	30	100

o Serun albunin

Severe: less than 2.5 gm%

Moderate:between 2.5-3 gm%

Mild: between 3-3.5 gm%

oo Lymphocytic.coulat

Severe: less than 900

Moderate: between 900-1500

Mild: between 1500 - 1800

Table 3 showed that P.C.M. according to serun albumin was severe in 13.3% and moderate in 36.6% for total of 50%. Using lymphocytic count. P.C.M. was severe in 10% and moderate in 33.3% for a total 43.3%.

As shown in tables 2 and 3, it was highly evident that anthropometric measurements were more affected than the biochemical tests.

The correlation of the somatic protein parameters (triceps skin fold and weight) and serum albumin was highly significant (table 4 A.B.)

TABLE 4 A CORRELATION OF EVALUATION OF SOMATIC PROTEIN COMPARTMENT WITH SERUM ALBUMIN

	WEIGHT/HEIGHT				TRICEPS SKIN FOLD			
SERUM ALBUMIN	SEVERE	o MOD	MILD	oo ADEQ	SEVERE	MOD	MILD	ADEQ
Severe (4)	4	0	0	0	4	0	0	0
Moderate (11)	6	4	1	0	9	2	0	0
Mild	2	6	1	0	9	0	0	0
Adequate	1	3	2	0	5	1	0	0

o Mod: Moderate

oo adeq: adequate

TABLE 4 B CORRELATION OF EVALUATION OF SOMATIC PROTRIN COMPARTMENT WITH SERUM ALBUMIN

SERUM ALBUMIN	ARM MUSCLE CLRUMFERENCE				CREATININE HEIGHT INDEX			
	SEVERE	MOD.	MILD	ADEQ	SEVERE	MOD.	MILD	ADEQ
Severe (4)	3	1	0	0	3	1	0	0
Moderate (11)	3	7	1	0	9	0	0	2
Mild ?	1	6	2	0	5	2	[illegible]	1
Adequate	2	3	1	0	2	1	0	3

In a total populotion of 15 with sever and moderate depletion of serum slbumin level, 14 or 93% were associated with severe and moderate deficit of weight for height and arm muscle circumference, 15 or 100% were associated with severe and moderate deficit of triceps skin fold, and 13 or 87% were associated with severe and moderate deficits of creatinine height index. In a total population of 4 with severe depletion of serum albumin 4 or 100% were accompanied by severe deficits of T.S.F. and weight, 3 or 75% were accompanied by severe deficits of arm muscle circumference and creatinine height index.

The correlation between lymphocytic count and the parameters of somatic protein compartment (Table 5 A.B)

revealed also significant correlation of T.S.F. and weight loss with lymphocytic count. Out of 13 patients with moderate and severe depletion of lymphocytic count 12 or 92% had severe and moderate deficit of weight, 13 or 100% had severe and moderate deficit of T.S.F, 11 or 84% had severe and moderate deficit of A.M.C. and 8 or 62% had severe and moderate deficit of creatinine height index. In a total of 3 showing severe depletion of lymphocytic count 2 or 66.6% showed severe deficit of weight and T.S.F and one or 33.3% were associated with severe deficit of arm muscle circumference and creatinine height index.

TABLE 5A CORRELATION OF EVALUATION OF SOMATIC PROTEIN COMPARTMENT WITH LYMPHOCYTIC COUNT.

	WEIGHT/ HEIGHT				TRIEPS SKIN FOLD			
LYMPHOCYTIC COUNT	SEVERE	MOD.	MILD	ADEQ	SEVERE	MOD.	MILD	ADEQ
Severe	2	1	0	0	2	1	0	0
Moderate	3	6	1	0	10	0	0	0
Mild	4	1	0	0	4	1	0	0
Adequate	6	2	4	0	11	1	0	0

TABLE 5B CORRELATION OF EVALUATION OF SOMATIC PROTEIN COMPARTMENT WITH LYMPHOCYTIC COUNT.

	ARM MUSCLE CIRCUMFERENCE				CREATININE HEIGHT INDEX			
LYMPHOCYTIC COUNT	SEVERE	MOD.	MILD	ADEQ	SEVERE	MOD.	MILD	ADEQ
Severe	1	2	0	0	1	0	0	2
Moderate	1	7	2	0	6	1	0	3
Mild	3	2	0	0	3	1	0	1
Adequate	2	8	2	0	10	1	0	1

TABLE 6 CORRELATION OF ANTHROPOMETRIC MEASURES OF MALNUTRITION WITH CREATININE HEIGHT INDEX

	WEIGHT HEIGHT				TRICEPS SKIN FOLD				ARM MUSCLE CIRCUMPERENCE			
	Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq
Sev.	11	5	4	0	19	1	0	0	7	9	4	0
Mod.	1	1	1	0	3	o	0	0	1	2	0	0
Mild	0	0	0	0	0	0	0	0	0	0	0	0
Adeq	1	6	0	0	5	2	0	0	0	6	1	1

o Sev.: Severe

oo Mod.: Moderat

ooo Adeq: Adequate

Significant correlation of T.S.F and creatinine height index is shwon in table 6. Of total population of 20 with severe deficit of creatinine height index 19 or 95% were accompanied with severe deficit of T.S.F., 11 or 55% were associated with severe deficit of weight and 7 or 35% showed severe deficit of arm muscle circumference. Out of a total population of 23 with severe and moderate deficits of creatinine height index 18 or 78% had moderate and severe deficit of weight, 23 or 100% had moderate and severe deficit of T.S.F and 19 or 82% had moderate and severe deficit of arm muscle circumference. Creatinine height index was more correlated with arm muscle circumference than with the weight.

Seperation of patients by the anatomical site of the malignant disease was shown in tales (7A, B& 8). Although some categories had small number which were insignificant, severe depletion of both somatic and visceral protein compartment was more common in patients of cancer bladder. In postcricoid carcinoma and cancer oesophagus, the somatic protein compartment was more affected while in cancer bladder, the visceral portion was more affected.

TABLE 7A OCCURRENCE OF PROTEIN CALORIE MALNUTRITION
BY ANATOMICAL SITE OF CANCER (SOMATIC PROTEIN COMPARTMENT)

	TOTAL No.OF PATIENTS	WEIGHT HEIGHT				TRICEPS SKIN FOLD			
		Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq
Ca. oesophagus	6	2	3	1	0	5	1	0	0
P.C.C.	6	4	2	0	0	5	1	0	0
Ca. Bladder	6	3	2	1	0	6	0	0	0
Ca. Tongue	3	0	1	2	0	3	0	0	0
Ca. stomach	2	2	0	0	0	2	0	0	0
R.P.S.	2	1	1	0	0	1	1	0	0
Hypernephroma	1	0	1	0	0	1	0	0	0
Ca. larynx	1	0	1	0	0	1	0	0	0
Ca. Maxilla	1	0	1	0	0	1	0	0	0
Ca. Ovary	1	0	0	1	0	1	0	0	0
Metastatic Ca. of unknown origin	1	1	0	0	0	1	0	0	0

TABLE 7B OCCURRENCE OF PROTEIN CALARIE MALNUTRITION BY ANATOMICAL SITE OF CANCER (SOMATIC PROTEIN COMPARTMENT)

	TOTAL No.OF PATIENTS	ARM MUSCLE CIRCUMFERENCE				CREATININE HEIGHT INDEX			
		Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq
o Ca. Oesophagus	6	0	4	2	0	4	0	0	2
oo P.C.C.	6	2	4	0	0	3	1	0	2
Ca. Bladder	6	3	2	1	0	6	0	0	0
Ca. Tongue	3	0	2	1	0	1	1	0	1
Ca. stomach	2	1	1	0	0	1	0	0	1
ooo R.P.S.	2	1	1	0	0	1	0	0	1
Hypernephroma	1	0	1	0	0	1	0	0	0
Ca. Larynx	1	0	1	0	0	0	1	0	0
Ca. Maxilla	1	0	0	1	0	1	0	0	0
Ca. Ovary	1	0	1	0	0	1	0	0	0
Metastatic Ca. of unknown origin	1	1	0	0	0	1	0	0	0

o Ca. : Cancer

oo P.C.C.: Postcricoid carcinoma

ooo R.P.S.: Retroperitonaal Sarecoma

TABLE 8 OCCURRNCE OF PROTEIN CALORIE MALNUTRITION BY ANATOMICAL SITE OF CANCER (VISCERAL PROTEIN COMPARTMENT)

	TOTAL No.OF PATIENTS	SERUM ALBUMIN				TOTAL LYMPHOCYTIC COUNT.			
		Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq
Ca. oesophagus	6	0	4	2	0	0	2	1	3
P.C.C.	6	0	1	2	3	0	1	3	2
Ca. Bladder	6	1	3	2	0	0	2	1	3
Ca. Tongue	3	0	0	0	3	0	1	0	2
Ca. Stomach	2	2	0	0	0	0	2	0	0
R.P.S.	2	1	1	0	0	2	0	0	0
Hypernephroma	1	0	1	0	0	0	0	0	1
Ca. Larynx	1	0	0	1	0	0	1	0	0
Ca. Maxilla	1	0	0	1	0	0	1	0	0
Ca. Ovary	1	0	0	1	0	0	0	0	1
Metastatic Ca. of unknown origin	1	0	1	0	0	1	0	0	0

Table 9 showes causes of malnutrition where all patients gave a history of decreased intake, 2 of them the decreased intkae was associated with vomiting and another three proved to have inadequate absorption.

TABLE 9 CAUSE OF MALNUTRITION

• Decreased intake	30
• Vomiting	2
• Inadequate absorptio	3

Table (10 A.B & 11) show the separation of patients by the cause of decreased intake. Severe protein calorie malnutrition was more common with dyspepsis but the numbers are small. Severe P.C.M. occured more with anorexia than dysphagia. All cases of anorexia was associated with severe deficit of triceps skin fold.

TABLE 10 A OCCURRENCE OF PROTEIN CALORIE MALNUTRITION BY THE CAUSE OF DECREASED INTAKE (SOMATIC PROTEIN COMPARTMENT)

	TOTAL No.OF PATIENTS	WEIGHT/ HEIGHT				TRICEPS SKIN FOLD			
		Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq
Dysphagia	15	6	6	3	0	13	2	0	0
Anorexia	11	4	5	2	0	11	0	0	0
Dyspepsis	4	3	1	0	0	3	1	0	0

TABLE 10 B OCCURRENCE OF PROTEIN CALORIE MALNUTRITION BY THE CAUSE OF DECREASED INTAKE (SOMATIC PROTEIN COMPORTMENT)

	TOTAL No.OF PATIENTS	ARM MUSCLE CIRCUMFERENCE				CREATININE HEIGHT INDEX			
		Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq
Dysphagia	15	2	10	3	0	8	2	0	5
Anorexia	11	4	5	2	0	10	1	0	0
Dyspepsia	4	2	2	0	0	2	0	0	2

TABLE 11 OCCURRENCE OF PROTEIN CALORIE MALNUTRITION BY THE CAUSE OF DECREASED INTAKE(VISCERAL PROTEIN COMPARTMENT)

	TOTAL No.OF PATIENTS	SERUM ALBUMIN				TOTAL LYMPHOCYTIC COUNT			
		Sev.	Mod.	Mild	Adeq	Sev.	Mod.	Mild	Adeq
Dysphagia	15	0	5	4	6	0	4	4	7
Anorexia	11	1	5	5	0	1	4	1	5
Dyspepsis	4	3	1	0	0	2	2	0	0

The nutritional status and degree of malnutrition was shown in table 12, 13. Most of the patients had marasmus - kwahiorkor mix type of malnutriton.

TABLE 12 NUTRITIONAL STAUS ANDDEGREE

NUTRITIONAL STATUS	No	DEGREE
Marasmus	2	Severe
Kwashiorkor	-	
Marasmus		
Kwashiorkor Mix	28	Varying
Adequate	-	
Total	30	

TABLE 13 DEGREE OF MARASMUS KWASHIORKOR MIX

	No.
Severe marasmus sever kwashiorkor	5
Severe marasmus moderate kwashiorkor	17
Severe marasmus mild kwashiorkor	4
Moderate marasmus severe kwashiorkor	1
Moderate marsmus mild kwashiorkor	1
Total	28

Follow up of 30 patients revealed that

1- No operation was done for 3 patients, 4 had cancer bladder, 2 retroperitioneal sarcoma, one cancer tongue, one cancer stomach and one cancer maxilla.

2- In 8 patients only gastrostomy was done to improve their nutritional statu by enteral hyperalimentation. Six of these patients had cancer oesophagus, the other two had postcricoid carcinoma.

3- Excisional surgery was performed in 13 patients. Two of them had smooth postoperative course. One of them had panhysterectomy for ovarion carcinoma and the other had subtotal palliative gastrectomy for advanced cancer stomach. Three deaths occured postoperatively, one of them had redical cystectomy with rectal bladder for cancer bladder and another had right nephrectomy for hypernephroma. The cause of death in both of them was peritonitis and septic shock. The third was explored abdominally for a chordoma of sacrum where no tunour was present and only peritoneal nodules and liver matastasis were found. The Cause of death was cardiac arrest. Eight patients developed postoperative complications as shown in table 14. All patients developed wound sepsis. Three of them had secondary heamorrhage. Two had sloughing of skin flaps and another two developed fistula.

TABLE 14 POST-OPERATIVE COMPLICATIONS

No of Patients	Diagnosis	Operation	Complications
1	Ca. bladder	Radical cystectomy & rectal bladder	Wound sepsis
1	Ca. Tongue	Commando operation	Wound sepsis
1	Ca. Tongue	Commando operation	Wound sepsis and secondary haemorrhage
2	P.C.C.	Total laryngo - pharyng ectomy	Wound sepsis
1	P.C.C.	Total laryngo - pharyng ectomy & neek dissection	Wound sepsis, sloughing of the skin Flaps and secondary haemorrhage
1	P.C.C.	Total laryngo - pharyng ectomy with myocutaneous flap.	Wound sepsis, sloughing of the skin flaps, secondary haemorrhage and fistula.
1	Ca. larynx	Total laryngectomy	Wound sepsis and fistula.

66

97