NUTRITIONAL MANAGEMENT OF CRITICALLY ILL PATIENTS

CASE STUDY NO 1

Clinical Presentation

- An elderly female 65 years old brought to emergency ward .
- Known case of HTN, IHD, DM and ESRD, Difficulty in breathing, Bedridden -6 months post lithotripsy from TKC
- Patient had undergone hemodialysis 7 months back, was advised maintenance HD and AV fistula.
- Her oral intake was inadequate since last 2 weeks.
- Presenting complain – Drowsiness, Decreased appetite, Decreased urine out put ,Shortness of breath

Lab Investigations

- ABg1 reveals severe acidosis
- Hb 8.2 g/dl
- S. albumin = 28 g/L
- S .urea = 25.8 mmol/L
- Creatinine= 758 umol/L
- Serum K+ = 5.3 mEql/L
- Weight= 48 kg
- Bp – 131/85
- Heart rate 45/m
- Urine output 300ml/24 hrs
- Intake 600ml/24 hrs

Hemodialyzed on urgent basis in the ICU Dialysis unit.

Drug Treatment

- Inj Rizek 40 mg I/V OD
- Inj Meronim 500 mg I/V TDS
- Inj Humulin R as per s/s
- Tab Loprin 75 mg OD
- Tab Lowplat 75 mg OD
- Tab Sustac 2.6 mg BD
- Nebulize with Ventoline stat
- Inj Atropine I/V stat
- Inj Venofer 1 amp in 100 ml Normal saline
- RCC 01 unit for transfusion

Nutritional requirement

- Calories = 20x kg BW
- Proteins = 1 gm X kg BW
- Fluid intake = 1300 -1500 ml
- Carbohydrates= less than 50 % of total calories
- Fats= 30% of the total calories

What would be the preferred route of feeding

- EN
- PN
- Oral

- Early intervention with correct nutritional therapy can have a significant impact producing clinical outcomes.
- In this case we used EN therapy because it is preferred method of support.

" If the gut works, use it."

Nutritional Intervention

- N/g was passed and feeding started at the rate 150 ml/ 3 hourly x 7 feeds
- Inj Aminovil 5% I/V 500ml
- A low carbohydrate , moderate proteins and high fat composition formula was selected.

Day 3

Metabolic complications started

- K↓
- Mg↓
- Na ↑
- Patient developed cardiac arrhythmias and severe breathlessness and edema.

Refeeding syndrome

- A complication of nutrition repletion that can cause morbidity and mortality in a stressed malnourished patient.
- Rapid shift of electrolytes, hyperglycemia.
- Patient at risk are those with cancer cachexia, eating disorders, as well as elderly.
- 50-70% of energy needs
- Monitoring of serum electrolytes , glucose, magnesium and phosphorus along with intake/output and daily weight.

Solmon SM , Kirby DF. The refeeding syndrome: a review . J parental Enteral Nutr.1990:14:90-97

- Correction of electrolytes
- Tab $MgSO_4$ 100mg BD
- Potassium chloride

- Bolus feeding changed to continuous drip method at the rate 30ml/hr for the first day then gradually increasing to 50ml/hr

DAY 6 day 9

- After six days- conscious level improved
- N/g tube removed on the 9th day.
- Oral semi- solid diet was started
- Patient was shifted to general medical ward.
- Patient was put to regular maintenance HD twice weekly.

Hb %	8.2 g/dl	9.9g/dl
S. albumin	28 g/dl	30g/dl
Urea	25.8mmol/L	12.7mmol/L
Creatinine	465 umol/L	296 omol/L
S.glucose F	150mg/dl	128mg/dl
Sodium	150mmol/L	142mmol/L
Potassium	3.2mEql/dL	3.9 mEql/dL
Magnesium	0.68 mEq/L	1.48mEq/L

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CASE STUDY 2

- A 60 year old lady with recurrent carcinoma tongue reported with perforation of floor of mouth.
- She was operated for SCC in 2012 .
- Post chemo therapy –inoperable
- Inability to take orally.
- On supportive care

history

- The women belonged to Moro. She developed mouth ulcers 13 years back.
- She suffered from ulcerative growth extending to left retro motor tongue and was operated for growth in Hyderabad 8 years back.
- She could not speak.

Lab investigations

- TLC =11.7
- Hb% = 8.2 g/dl
- Platelet =508
- S sodium =138 mmol/L
- S potassium=4.2 mEq/L
- S urea = 10.7 mmol/L
- Creatinine = 115 umol/L
- Weight = 45 kg
- Bp =110/80

Treatment

- 5 fu 600 mg I/V 2 weekly
- R/L 1000 I/V OD
- Inj Neurobion
- Inj Aminovel 500l I/V
- Inj Toradol I/V BD
- Inj Augmentine 1.2 I/V TDS
- Dakron oral gel
- Xanax 0.5 mg HS
- Neztril 600 mg BD
- Oral clean mouth wash

Nutritional intervention

- Inability to take orally therefore N/g tube was passed
- Bolus feeding @ 150 ml /3 hour started on day one
- On third day the rate was increased to 250ml/3 hours.


1/2

complication

- On day 11 the patient developed pain epigastrium .

- Augmentin was stopped .
- Inj Zantac added I/v BD
- Xanax 0.5 mg HS
- Patient was put on feeding through continuous drip method @ 20ml/hr.

Permanent feeding

- If permanent feeding is required or nutritional therapy is needed for more than 4 weeks, gastrostomy is advocated.
- Surgical Gastrostomy was planned as life support feeding route.

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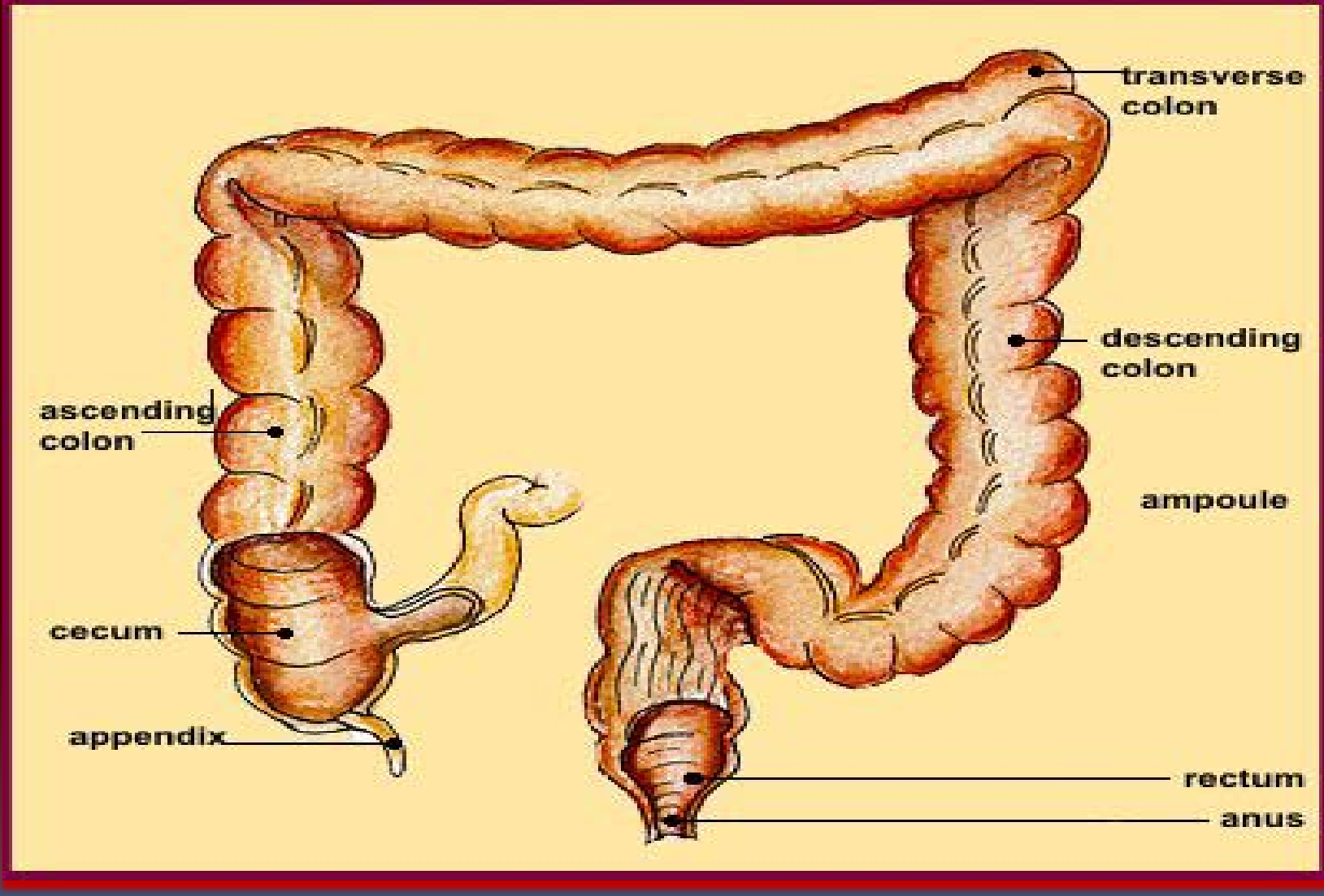
CASE STUDY 3

CLINICAL PRESENTATION

- A 44 Year old man was admitted to the emergency ward after a road traffic accident.

  After being stabilized he was taken to the operation theatre where he underwent a splenectomy , ascending colectomy, including the ileocecal valve, and a jejunostomy as a result of blunt abdominal trauma. He also underwent a left thoracotomy for chest tube placement because of perforated lung and placement of right internal jugular (IJ) catheter for central venous access.

The Large Intestine



Consequence of resection

Ascending Colon:

- The first segment of the colon. The muscles of the ascending colon push chyme upwards, absorbing water in the process.

The ileocecal valve :

- Serves as a barrier for preventing colonic bacteria from the colon from getting into the small intestine
- Play a role in regulating the exit of fluid and nutrients from the small intestine.
- Resection of the ileocecal valve may result in bacterial overgrowth.
- Following resection, rapid transit of nutrients from the small intestine into the colon may exacerbate malabsorption.

- After being stabilized the patient was shifted to ICU with an endotracheal tube in place for mechanical ventilation.
- He has a Ng tube in place for gastric decompression and bilateral tubes in place for postoperative abdominal wound drainage.

Gastric decompression

- NG tubes may also be used for several therapeutic reasons.
- They may be placed during surgery in order to keep the stomach empty (decompressed) until the normal functioning (peristalsis) of the GI tract returns.
- To decompress the GI tract, the tube remains in place with intermittent or constant suction to aspirate the gastric contents and remove gaseous buildup.

- Ht = 5 feet 10 inches
- Weight= 80 kg
- He had ++1 edema on his arms and legs at the time of admission to the ICU.

Nutritional Intervention

- Parenteral nutrition was started on post operative day 2 in the ICU via IJ catheter

  because the small bowel was not yet functional although there was no abdominal distention.

What are the caloric and protein requirement of this patient.

- Calories 25 kcal X kg BW
- Proteins 1.5 g x kg BW
- Fluid 35ml x kg /day

- 10 % DEXTROSE X 1500ml
- 15% AMINOVIL INJ X 1000 ml
- 20% LIPOSIN INJ x 300ml
- Multi bionta 10 ml/ OD

Three chamber TPN bag

Post operative day 4

- Enteral formula were started at 20ml/hr, formula was started via the jejunostomy with concomitant intermittent nasogastric decompression.

Formula selection

- Hydrolyzed formula – peptamen

Post operative day 8

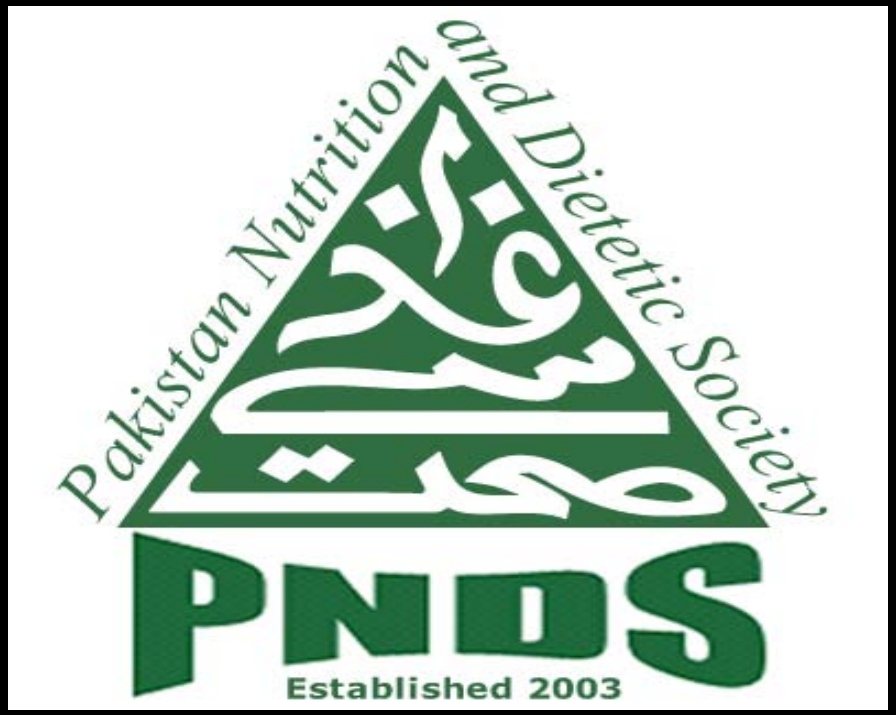
- The jejunostomy enteral nutrition was at 40 ml/hr, providing close to half the amount of protein and energy requirement of the patient.
- The parenteral nutrition was decreased by half.

Post operative day 11

- Parenteral nutrition was stopped as the jejunostomy infusion had been advanced to 80ml/hr.

Post operative day 12

- The endotracheal tube was removed because the patient had been successfully weaned from mechanical ventilator.
- An anti aspiration pureed diet was started.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