

2nd Clinical Nutrition
Update 2010
17th & 18th September, 2010



NUTRITION PLANNING FOR PRE AND POST LIVER TRANSPLANT

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PRE - OPERATIVE

Case Presentation

- Name: Mr. XXX
- Age: 51yrs
- Sex: Male
- No. of days in the hospital: 23

Present History of Illness

- Decompensated chronic Liver disease with diarrhoea
- Altered sensorium
- Abdominal distension

Past History of Illness

Past Admissions -
Decompensated
CLD

Admission	Chief Complaints
1 st - Evaluation	Diarrhoea
2 nd - After 1 month	Diarrhoea, general weakness, blurred vision
3 rd - After 15 days	Hepatic encephalopathy
4 th - After 2 months	Diarrhoea, abdominal distension

Nutrition Screening

- Nutrition screening was done on admission as a routine by the doctor and referred to the Dietitian for further assessment

Nutrition Assessment

Subjective Global Assessment (SGA)

A. Patient related medical history

Anthropometry

Height: 184cms ; Weight: 60.4kg ; BMI: 19

- Weight change
 - **weight loss – 9%**
- Diet history – Moderate overall decrease
 - **due to ascites, diarrhoea, abdominal pain etc.,**
- GI symptoms
 - **nausea, diarrhea, abdominal pain etc.,**

cont....

Nutrition Assessment

- Functional capacity – Difficulty in normal activity
- Co-morbidity – Decompensated CLD, with diarrhoea, altered sensorium and abdominal distention

B. Physical examination

- Muscle wasting - present
- Fat stores – decreased
- Presence of Ascites – yes

cont....

Patients Label

SUBJECTIVE GLOBAL ASSESSMENT (ADULTS)

(A) Patient's related medical history

1. Weight change (overall change in past 6 months)

1	32 5	weight loss 5-10%	weight loss 10-15%
No weight change or gain	Minor weight loss <5%		weight loss >15%

2. Dietary Intake (Duration)

1	32 5	Full liquid diet or moderate overall decrease	Hypo-caloric liquid	tarvation	S
No Change	Sub-optimal solid diet				

3. Gastrointestinal Symptoms (Duration)

1	32 5	Vomiting or moderate GI symptoms	Diarrhoea	evere anorexia	S
No symptoms	ausea	N			

4. Functional Capacity (Nutrition related functional impairment)

1	32 5	Difficulty with normal activity	Light activity	Bed/chair-ridden with no or little activity
None / improved	Difficulty with ambulation			

5. Co-morbidity(Disease and its relationship to nutritional requirements)

1	32 5	Moderate co-morbidity or age > 75 years	Severe co-morbidity	Very severe multiple co-morbidity
Healthy	ild co-morbidity	M		

(B) Physical Examination

1. Decreased fat stores or loss of subcutaneous fat

1	32 5	Moderate	Severe
Normal (no change)			

2. Signs of muscle wasting

1	32 5	Moderate	Severe
Normal (no change)			

Total Score = Sum of above 7 components

Nutritional Status: Based on this score patient is :

- | | |
|--|---------------------------------|
| <input type="checkbox"/> Well nourished | 7-14 - Well nourished |
| <input type="checkbox"/> Moderately malnourished | 15-28 - Moderately malnourished |
| <input type="checkbox"/> Severely malnourished | 29-35 - Severely malnourished |

Height _____ cms

Current weight _____ kg.

Dietitian

Date

Subjective Global Assessment (SGA) Score

Factors	Score
Weight change	3
Diet history	3
GI symptoms	4
Activity Level	3
Comorbidity	4
Muscle wasting	3
Fat stores	3

- Total score of the seven components = **23**
- Rating – **Moderately malnourished**

Nutrition Care Plan

- **Pre OP Nutrient recommendations**
Energy Requirement
- 1.2 to 1.4 times of BEE (approx 30-35 Kcal/Kg/day)
 - BEE using Harris Benedict equation : 1679
 - AEE : $1.3 \times \text{BEE} - 2309$
 - 60 – 70 % of calories as complex & simple CHO
- **American Association for the Study of Liver Disease**

Nutrition Care Plan

Pre OP Nutrient recommendations

Protein Requirement

- Minimum 1.0 – 1.2 g/kg to 1.5g/kg

Predisposition weight - $75 \times 1.2 = 90$

- To maintain
 - Muscle mass
 - Protein levels in the blood
- Hepatic Encephalopathy
 - Limit 0.6 – 1.0g/kg
 - BCAA formula
- **American Association for the Study of Liver Disease**

Nutrition Care Plan

- **Salt Restriction**

0 - 5 g / day

- **Fluid Restriction**

1 – 1.25 litres / day

- ***Individualized***

Diet prescription during hospital stay

Day	Diet Order
1	SF, 1000ml F/R, Semi Solid Diet with Nocturnal RTF @ 50ml/hr (9pm – 7am)
3	SF, 1000ml F/R, RTF @ 40ml/hr with Semi Solid Diet
10	5g S/R, 1250ml F/R Diet including Nocturnal RTF @ 60ml/hr (9pm – 7am)
13	5g S/R, 1250ml F/R RTF @ 50ml/hr with Diet
20	4g S/R, 550ml F/R Diet with 70ml/hr Nocturnal RTF (9pm – 7am)

Nutrition Education

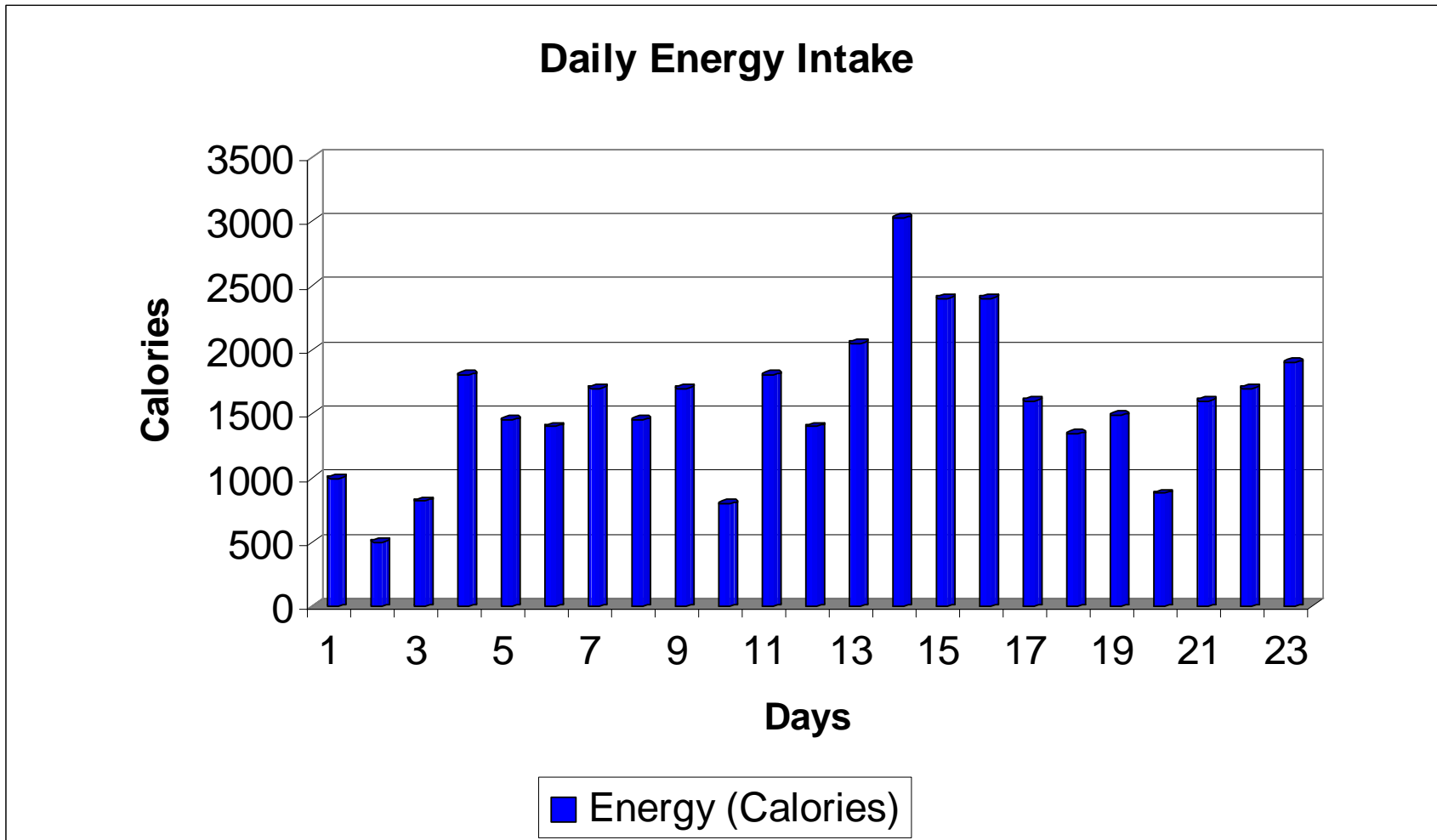
- Educated on the salt and fluid restrictions
- Emphasized on
 - Increased caloric and protein intake
 - Importance of tube feed
- Small frequent meal with high calorie snacks

Nutrition monitoring

- Oral intake was monitored using a food and fluid chart
- Daily intake was monitored by the Dietitian
- Calorie and protein were met by oral diet and tube feed
- Labs : Hb, Serum Albumin, Lymphocytes, Na, K etc.,

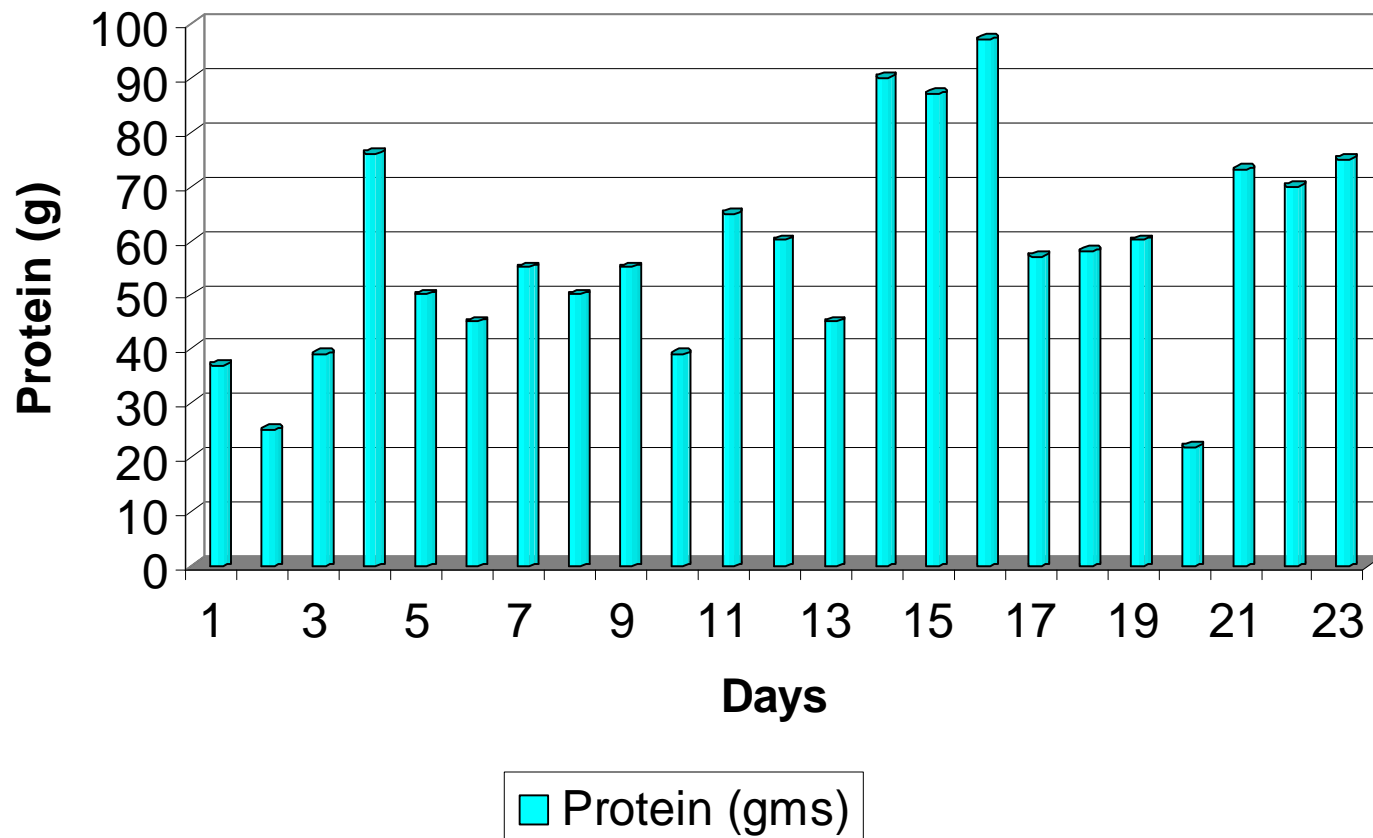
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Nutrition monitoring



Nutrition monitoring

Daily Protein Intake



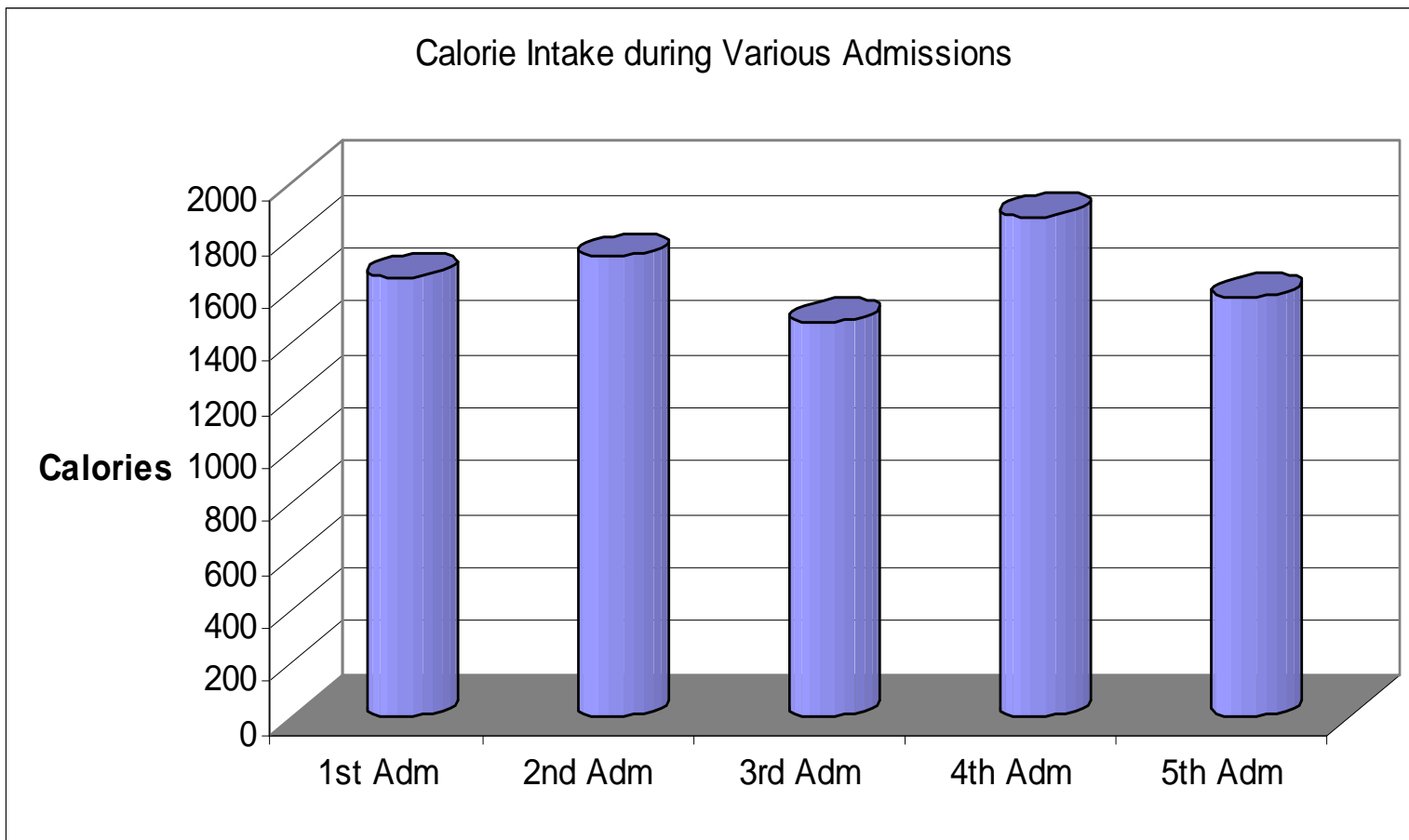
Reasons for Deviation

- Intolerance
- Salt & fluid restriction
- Abdominal Pain
- Hepatic encephalopathy
- Nausea

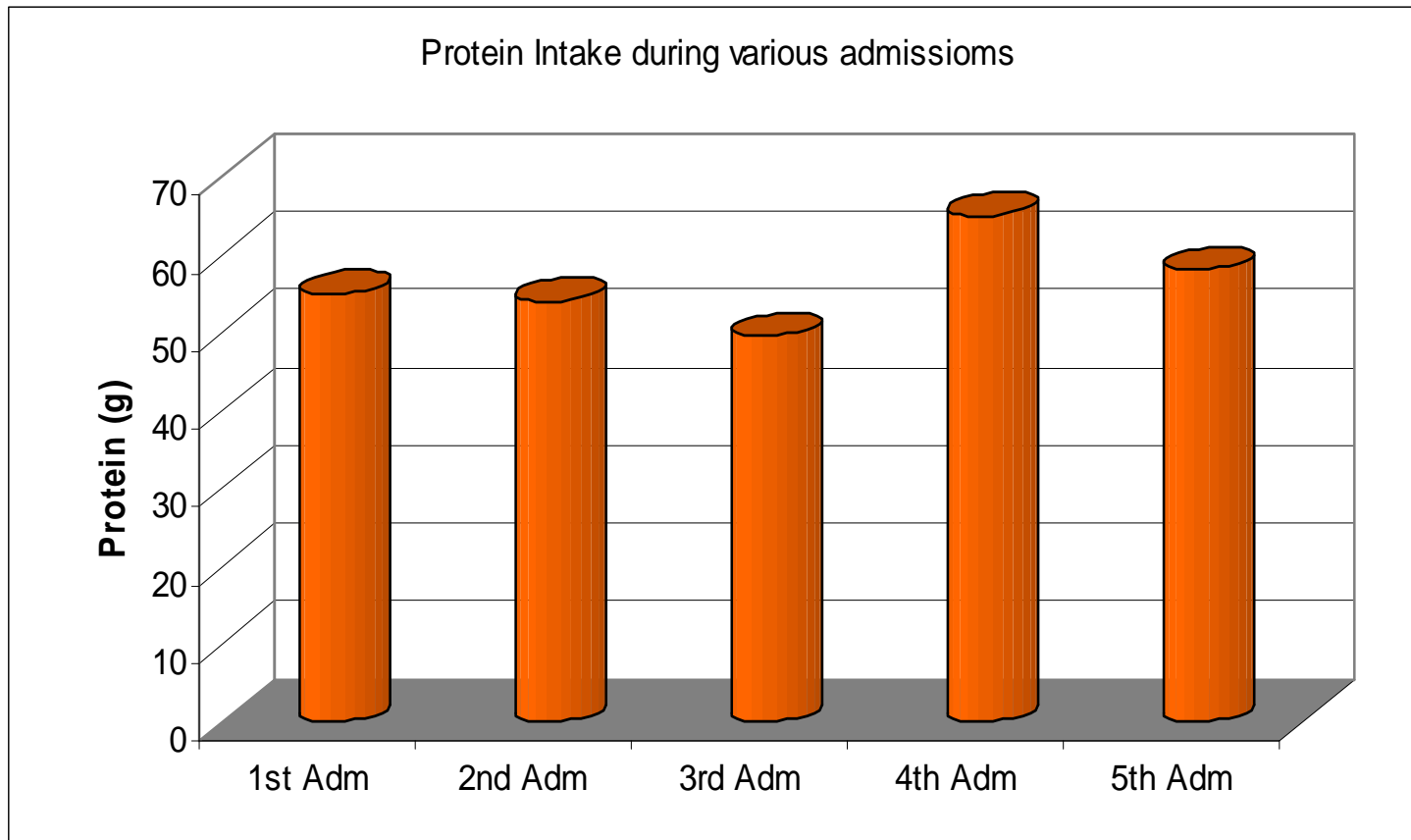
Discharge Education

- Discharge Diet - 4g Salt, 1250ml F/R, diet with nocturnal RTF @ 60ml/hr for 10hrs
- Educated the patient & family
- Diet Chart was provided

Calorie intake during various admissions



Protein intake during various admissions



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POST – OPERATIVE

Nutrition Assessment

- Post OP nutrition assessment was done using SGA
- SGA score – 21
- Moderately Malnourished

Immediate Post - operative state

Nutrition Status is affected by

- Graft function
- Pre- existing malnutrition
- The stress response to surgery
- Catabolic effects of high dose steroids

Nutrition Care Plan

- **Post OP Nutrient recommendations**

Energy – 1.2 – 1.3 times BEE

- BEE using Harris Benedict equation: 1679
- AEE : $1.3 \times \text{BEE}$ - 2309calories

Protein - 1.3 – 2g / kg / day

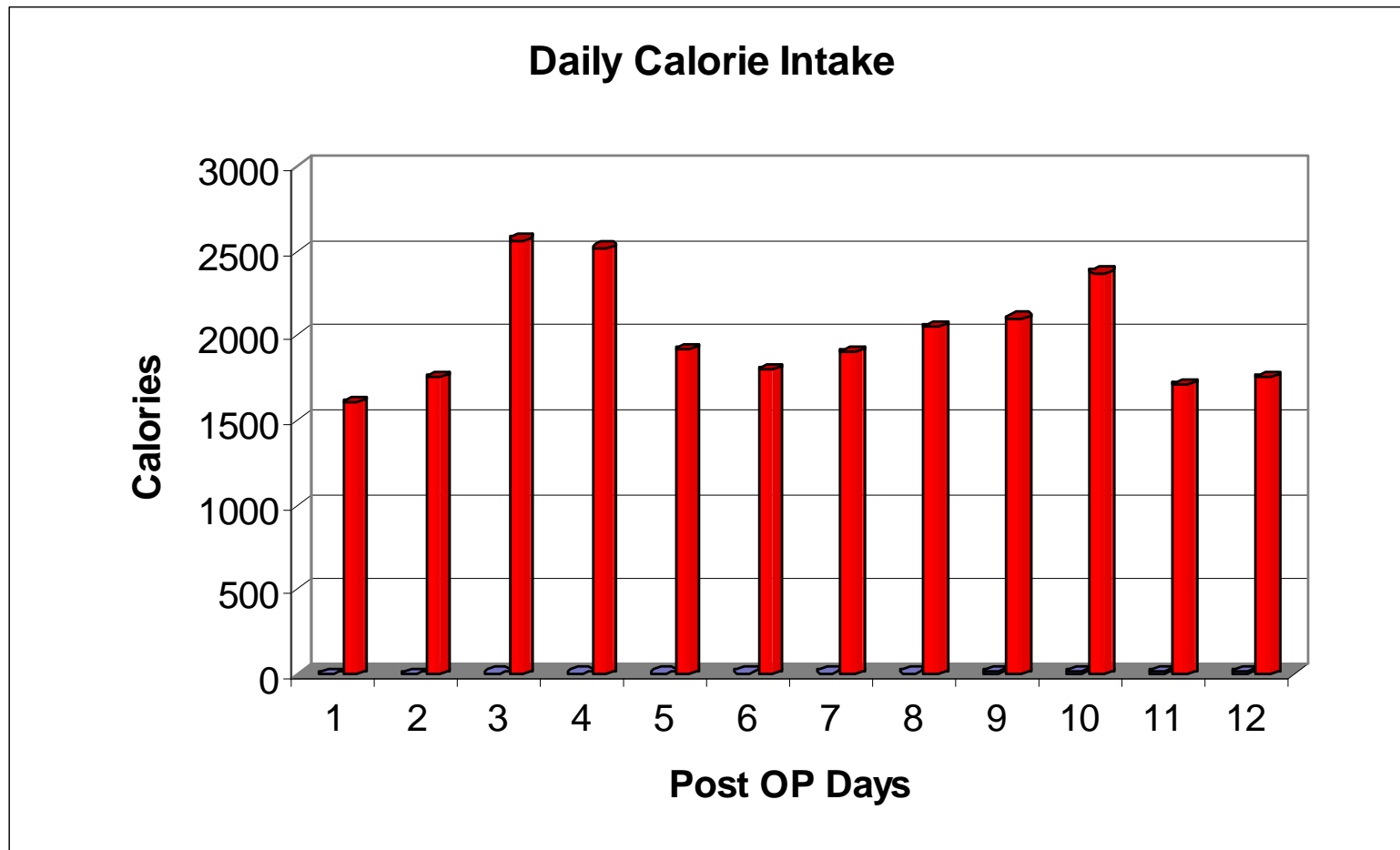
- Predisposition weight - $75 \times 1.3 = 98\text{g}$

- **American Association for the Study of Liver Disease**

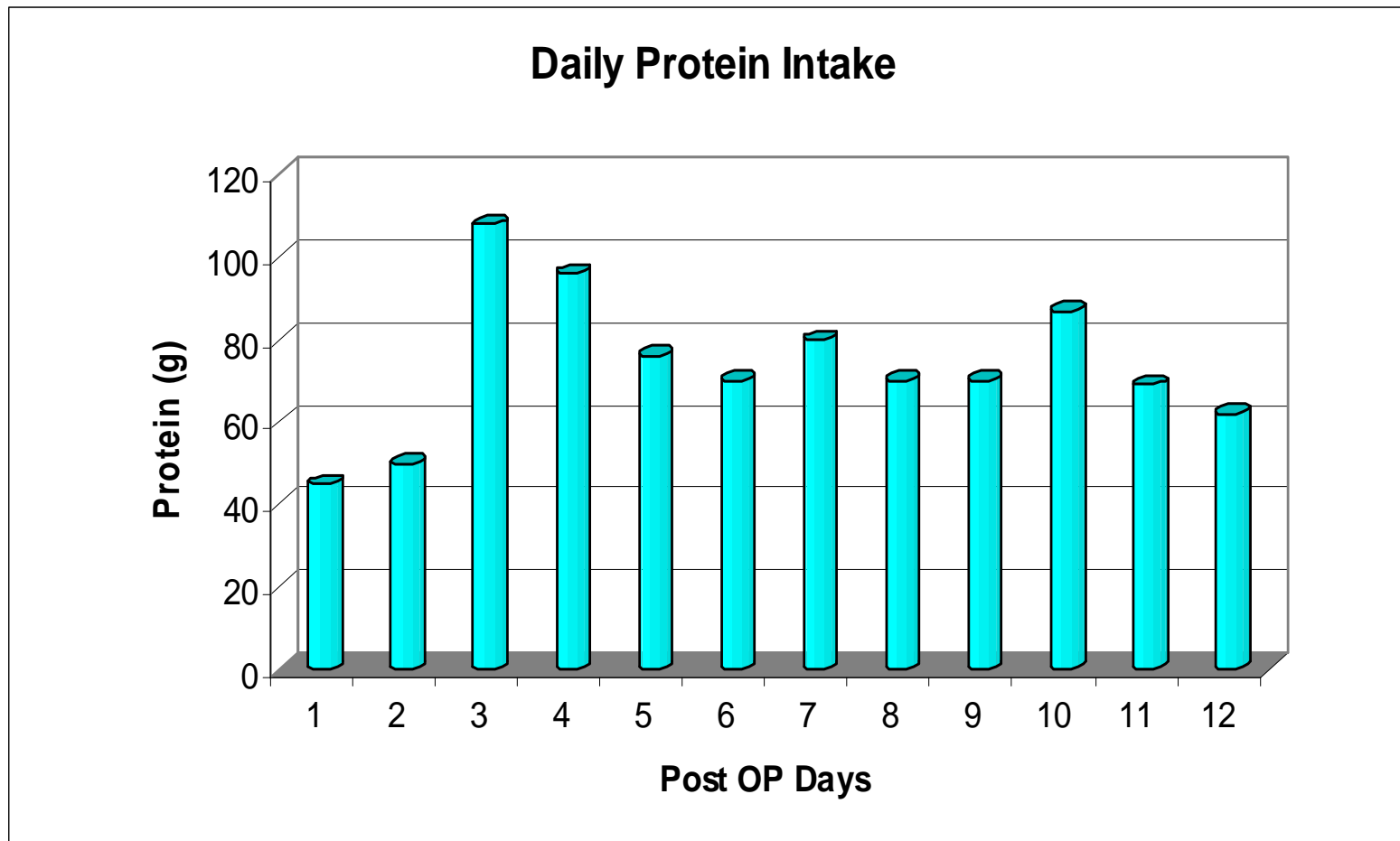
Immediate Post - operative Diet

- Day 1 - Clear liquids from 6pm
- Day 2 - Soft Solid diet from afternoon
- Day 3 - Normal diet
- Day 6 - Low Potassium diet
- Day 10 - Normal diet

Nutrition monitoring



Nutrition monitoring



Reasons for Deviation

- Post OP stress
- Pain
- Cultural differences

Discharge Diet Education

- Educated the patient & family on post transplant diet protocols
- Diet Chart was provided

Guidelines for food hygiene

- Foods should be cooked thoroughly and eaten
- Meals should be served hot and never reheated
- Do not use leftovers
- Food should be eaten fresh and well within the “use by date”

Guidelines for food hygiene

- Individual small packets of foods and drinks - advised
- Hand wash - Emphasized
- Only thick-skinned fruits are permitted
- Use of separate cutting board - prevent cross-contamination
- Non-vegetarian foods should be very well cooked

Guidelines for food hygiene

- Eating out is restricted for 6 months
- When eating out,
 - Avoid salads, raita, fresh fruits etc.
 - Avoid eating in unclean eat outs
- Drink boiled cooled water

THANK YOU