

# Liver Transplantation: Case Study - Offering Hope to End-Stage Liver Disease Patient

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**Abstract:** *Case Presentation: In 2013, 60 years old lady was admitted with history of mild abdominal pain in right umbilical region since last six months. History of diabetes mellitus on insulin since last one year. No history of nausea, vomiting, fever and constipation. No family history. Patient is diagnosed to have chronic liver disease HCV admitted at Apollo Hospital for cadaveric liver transplant. After examination her blood pressure was 120/80 mm/Hg, pulse 80 beat/min, respiratory rate 20 beats/min. She underwent cadaver donor whole liver transplant. She tolerated the procedure well and was extubated within 24 hours. Post operative period was uneventful except for auditory hallucinations, which disappeared after decreasing the dose of steroids. She was also started on prograf and cellcept. She tolerated them well. After removing drains, she was discharged on 7th day after liver transplantation.*

**Keywords:** Diabetes mellitus, blood pressure, steroids, prograf, cellcept

## 1. Introduction

Liver transplantation has had a profound impact on the care of patients with end-stage liver disease and is the most effective treatment for many patients with acute or chronic liver failure resulting from a variety of causes. Before transplantation, patients with advanced liver disease usually died within months to years. These patients now have the opportunity for extended survival with excellent quality of life after liver transplantation.

## 2. Case Presentation

In 2013, 60 years old lady was admitted with history of mild abdominal pain in right umbilical region since last six months. History of diabetes mellitus on insulin since last one year. No history of nausea, vomiting, fever and constipation. No family history. Patient is diagnosed to have chronic liver disease HCV admitted at Apollo Hospital for cadaveric liver transplant. After examination her blood pressure was 120/80 mm/Hg, pulse 80 beat/min, respiratory rate 20 beats/min. She underwent cadaver donor whole liver transplant. She tolerated the procedure well and was extubated within 24 hours. Post operative period was uneventful except for auditory hallucinations, which disappeared after decreasing the dose of steroids. She was also started on prograf and cellcept. She tolerated them well. After removing drains, she was discharged on 7<sup>th</sup> day after liver transplantation.

**Keywords:** Diabetes mellitus, blood pressure, steroids, prograf, cellcept

### Medication History

Medicine	Dose	Frequency	Purpose
Inj Magnex Forte IV	1.5 gm	1-0-1	To treat systemic infection
Inj Targocid IV	400 ml	1-0-0	Antimicrobial
Inj Syscan IV	200 mg	OD	Antifungal
Inj Pantadoc IV	40 mg	1-0-0	Gastric formation
Inj Perfalagan IV	1 gm	Q8H	Analgesic
Tab Aspirin	75 mg	OD	Analgesic
Cap Prograf	1 mg	BD	Immunosuppressant
Cap Becosules		1-0-1	B Complex
Tab Shelcal - M		1-1-1	Calcium carbonate

Levolin Neb	0.63 mg	Q6H	Prevent bronchospasm
Ipratropium Neb		Q6H	Antimuscarinic bronchodilator
Inj Solumedrol IV	40 mg	STAT	Antiallergic
Tab Cellcept	500 mg	BD	Immunosuppressant
T. Paracetamol	500 mg	S - O - S	Mild analgesic

**Surgery:** Procedure done on 27/09/13

### Biochemical Parameters

Parameter	Result	Normal Range
Haemoglobin	8.0* gm/dl	11.5 - 14.5
WBC	3.4* thousands/cumm	4 - 11
RBC	2.9* millions/cumm	3.8 - 4.8
Platelet count	53* thousands/cumm	150 - 450
Total. Bilirubin	2.54* mg/dl	0.2 - 1.2
S. bilirubin direct	1.24* mg/dl	0.0 - 0.4
S. bilirubin indirect	1.30 mg/dl	0.1 - 1.0
S. Total protein	7.0 gm/dl	6.0 - 8.5
S. Albumin	2.5 gm/dl	3.5 - 5.2
S. Globulin	4.5 g/dl	2.0 - 4.0
A/G Ratio	0.6	0.8-2.0
S. SGPT	37 U/L	5 - 40
S.SGOT	89 U/L	5 - 45
S. Urea	41 mg/dl	15 - 45
S. Creatinine	0.94	0.81 - 1.44
S. Sodium	134 mmol/L	135 - 145
S. Potassium	4.2 mmol/L	3.5 - 4.5

### 24 Hour Dietary Recall

Timing	Meal	Menu	Amount
8:00 am	Early Morning	Tea	100ml
9:00 am	Breakfast	Dalia Porridge	1 Cup
11:00 am	Mid Morning	Sprouts	1/2 Cup
1:30 pm	Lunch	Roti Moong Dhal Panner vegetable Curd	2 Nos 1/2 cup 1/2 cup 1/2 cup
4:00 pm	Evening Snack	Biscuit Tea	2 No 100 ml
8:00 pm	Dinner	Roti Veg Subzi Curd	2 Nos 1 cup 1/2 cup
9:00 pm	Bed Time	Milk Fresubin DM	100 ml 2 tsp

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	Energy (kcal)	Protein (gm)	Fat (gm)	CHO (gm)
Requirements	1700	58	37.77	255
Intake	1244	51	20	180

**Goal of Medical Nutrition Therapy**

- To replenish malnourished individuals
- To maintain the status of those with adequate muscle and energy reserve
- To promote weight loss in candidates with excessive weight based on body mass index
- To manage patients' symptoms to maximize quality of life
- To improve nutritional status and body weight
- To prevent from further complication

**Nutritional Requirement**

Energy - 1700 kcal  
 Protein - 58 gm (1 gm/kg body wt)  
 Fat - 37.77 gm  
 Carbohydrate - 255 gm

**Management**

**Diet at hospital**

Date	Diet	Energy (kcal)	Protein (gm)
27/09/13	NPO	-	-
28/09/13 (9:50 am)	NPO	-	-
29/09/13 (8:00 am)	DM clear liquid	300	-
29/09/13 (9:00 am)	DM full liquid	600	-
30/09/13 (9:00 am)	DM soft diet	1348	54.8
01/10/13 (10 am)	DM soft diet	1738	73.8
02/10/13 (9:00 am)	DM soft diet	1562.5	65
03/10/13 (9:30 am)	DM soft diet	1500	63

**30/09/13**

Time	Meal	Menu	Amount
8:00 am	Early Morning	Tea	150 ml
9:00 am	Breakfast	Idli Sambar Chutney Milk	3 Nos 1/4 <sup>th</sup> cup 1/4 <sup>th</sup> cup 150 ml
11:00 am	Mid Morning	Soup Banana	150 ml 1 no
1:30 pm	Lunch	Rice Dalia Khichdi Toor Dal Boiled veg Curd	1/4 <sup>th</sup> Nos 1/2 cup 1/2 cup 3/4 <sup>th</sup> cup 1 cup
4:00 pm	Evening Snack	Tea Cow pea Sundal	200 ml 1/4 <sup>th</sup> cup
8:00 pm	Dinner	Chapathi Dalia Porridge Veg Subzi Curd	2 Nos 1/2 cup 1/2 cup 1 cup
9:00 pm	Bed Time	Milk Fresubin DM	150 ml 3 tsp

	Energy (kcal)	Protein (gm)
Requirements	1700	58
Intake	1348	53.4

**01/10/13**

Time	Meal	Menu	Amount
8:00 am	Early Morning	Tea	150 ml
9:00 am	Breakfast	Poha Sambar	1/2 cup 1/2 cup

		Chutney Watermelon	3/4 <sup>th</sup> cup 1 cup
11:00 am	Mid Morning	Soup Supplement Fresubin DM Milk	150 ml 3 tsp 150 ml
1:30 pm	Lunch	Rice Palak Corn curry Panner Curd	1/2 cup 1/4 <sup>th</sup> cup 1/4 <sup>th</sup> cup 3/4 <sup>th</sup> cup
4:00 pm	Evening Snack	Mousmbi Juice Idli Sambar Chutney	200 ml 1 no 1/4 <sup>th</sup> Cup 1/2 cup
8:00 pm	Dinner	Chapathi Paneer Subzi Rice Dhal Curd	2 Nos 1/2 cup 1/4 cup 1/2 cup 1 cup
9:00 pm	Bed Time	Milk Kabi Pro	150 ml 3 tsp
		Energy (kcal)	Protein (gm)
Requirements		1700	58
Intake		1738	73.8

**02/10/13**

Time	Meal	Menu	Amount
8:00 am	Early Morning	Tea	150 ml
9:00 am	Breakfast	Upma Sambar Chutney	1/2 cup 1/2 cup 3/4 <sup>th</sup> cup
11:00 am	Mid Morning	Soup Supplement Fresubin DM Milk Apple	150 ml 25 g 150 ml 1 cup
1:30 pm	Lunch	Chapathi Dal Subzi Paneer Subzi Curd	2 nos 1/2 cup 1/4 <sup>th</sup> cup 1/4 <sup>th</sup> cup 1/4 <sup>th</sup> cup
4:00 pm	Evening Snack	Tea Sundal	200 ml 1/2 cup
8:00 pm	Dinner	Chapathi Veg Subzi Dal Curd	2 Nos 1/2 cup 1/2 cup 1 cup
9:00 pm	Bed Time	Milk Kabi Pro	150 ml 2 tsp

	Energy (kcal)	Protein (gm)
Requirements	1700	58
Intake	1562.5	65

**03/10/13**

Time	Meal	Menu	Amount
8:00 am	Early Morning	-	-
9:00 am	Breakfast	Paratha Chutney Green peas curry Milk Fresubin DM	1 No 1/4 <sup>th</sup> cup 1/4 <sup>th</sup> cup 150 ml 25 g
11:00 am	Mid Morning	Soup Banana	150 ml 2 nos
1:30 pm	Lunch	Rice Dal Veg Subzi Paneer Sabzi Curd	1/2 cup 1/2 cup 1/4 <sup>th</sup> cup 1/4 <sup>th</sup> cup 1 cup
4:00 pm	Evening Snack	Tea Biscuits	200 ml 2 nos

8:00 pm	Dinner	Roti Dhal Curd	2 nos ½ cup ½ cup
9:00 pm	Bed Time	Milk Kabi Pro	150 ml 2 tsp

	Energy (kcal)	Protein (gm)
Requirements	1700	58
Intake	1500	63

- Drinking low-fat milk or eating other low-fat dairy products
- Maintaining a low-salt and low-fat diet
- Avoid raw foods, packed beverages, canned foods
- Avoid feasting or fasting
- Do not eat leftovers
- Staying hydrated by drinking adequate water and other fluids each day

### Medication Prescribed

Medicine	Dose	Frequency	Purpose
Tab Ecosprin	75 mg	0-1-0	Analgesic
Tab Cellcept	1000 mg	1-0-1	Immunosuppressant
Tab Wysolone	5 mg	1-0-0	Immunosuppressant
Tab Pantadoc	40 mg	1-0-0	Gastric formation
Tab Shelcal M	500 mg	1-1-1	Calcium carbonate
Tab Udiliv (7 days)	300 mg	1-1-1	For liver function
Tab Acivir DT (12 days)	400 mg	1-1-1	Antiviral
Cap Becosules		1-0-1	B Complex
Inj Human Actrapid	S/C	8-8-4 units (before meal)	To treat diabetes
Inj Lantus (9:00 pm)	S/C	12 units	To treat diabetes
Tab Anxozap	SOS		For poor sleep
Fresubin powder	2 tsp with milk		High fibre
Crtipro powder	2 tsp with milk		Peptide supplement

### 4. Conclusions

At the time of discharge patient blood sugar levels are controlled, surgical wound clean, pain score below four, vitals stable. Nutrition counseling was done and patient was prescribed to follow diabetic diet. Nutritional therapy is essential in patients with liver transplant. Adequate nutritional assessment before a transplant helps identify individual problems and may prevent complications. In the acute post transplant phase, early nutritional support can reduce complications. The main purpose of nutritional support in the immediate post transplant phase is to correct nutritional deficiencies and to reduce malnutrition. Prevention is the main target of chronic nutritional therapy after liver transplantation. Excessive weight gain is common after liver transplantation and frequently leads to obesity.

In her words “I am born again”.

### References

- [1] Belle SH, Porayko MK, Hoofnagle JH, Lake JR, Zetterman RK. Changes in quality of life after liver transplantation among adults. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) Liver Transplantation Database (LTD). Liver Transpl Surg 1997;3:93-104.

### Diet Prescribed

Timing	Meal	Menu	Amount
8:00 am	Early Morning	Coffee	100 ml
9:00 am	Breakfast	Roti Vegetable Subzi	2 nos 1 cup
11:00 am	Mid Morning	Fresubin Vanilla Milk	2 tsp 100 ml
1:30 pm	Lunch	Chapathi Dal Bottle gourd subzi Curd	2 nos 1/2 cup 1/2 cup 1 cup
4:00 pm	Evening Snack	Coffee Marie Biscuits	100 ml 2 nos
8:00 pm	Dinner	Dalia Porridge	1 cup
9:00 pm	Bed Time	Milk Kabi Pro	150 ml 2 tsp

### Routine Follow-up Care

The first 60–90 days after your transplant are the time of highest risk for rejection and infection. After liver transplant, need to adjust diet to keep liver healthy and functioning well and to prevent excessive weight gain. Should maintain a healthy weight, which can help prevent infections, high blood pressure.

### 3. Recommendation

- Long term nutritional guidance is very important
- Need multiple small and frequent meals
- Eating at least five servings of fruits and vegetables each day
- Eating whole-grain breads and cereals and other grains
- Having enough fibre in your daily diet