Early Post Renal Transplant Nutrition Care

Case Study

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SCRIPPS HEALTH

APRIL 12th, 2017

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Overview

- Overview of Disease State
- Patient Profile
- Medical/Surgical Data
- Nutrition Assessment
- Nutrition Diagnosis
- Nutrition Intervention
- Monitoring and Evaluation
- Conclusion
- References

Overview of Disease State

- Kidney Function

Normal Kidney

- Filter waste
- Fluid, electrolyte, and pH balance
- Produce enzyme and hormone

Chronic Kidney Disease → ESRD

- BUN↑, Creat↑ - Nitrogenous waste accumulation
- K↑, Phos↑
- GFR↓
- Edema
- Osteodystrophy
- Anemia

Overview of Disease State

- Kidney Transplant for ESRD

Advantages

- Potentially eliminates the need for dialysis
- Relatively liberalized diet
- Less fluid restrictions
- Improves quality of life

Disadvantages

- Immunosuppression
- Prone to infection
- Possible rejection of new kidney

Overview of Disease State

- Common Nutrition Intervention for Early Post-Op

Nutrient (per day)	Acute Phase (up to 8 weeks following transplant and during acute rejection)
Protein	1.3–2.0 g/kg; based on standard or adjusted body weight
Calories	30–35 kcal/kg; may increase with post-operative complications
Carbohydrates	Limit simple CHO with hyperglycemia
Fats	To meet additional energy needs
Potassium	2000–4000 mg if hyperkalemia exists
Sodium	2000–4000 mg may be necessary
Calcium	1200–1500 mg
Phosphorus	DRI (supplements may be needed)
Vitamins/minerals/trace elements	DRI
Fluids	No restriction unless graft not functioning

Source:
Clinical Practice Guidelines for Managing Dyslipidemias in Chronic Kidney Disease.
Am J Kidney Dis.
2003; 41(Suppl 3): s1–s91.

Overview of Disease State

- Common Nutrition Intervention for Early Post-Op

Protein	>1.2 g/kg (approximately 50% of high biologic value)
Energy	>35 kcal/kg
Fat	35% of total energy supply (high content of unsaturated lipids)
Water and sodium	*As tolerated by fluid balance*
Potassium	40–80 mmol
Calcium	800–1,000 mg (supplements may be required)
Phosphorus	8–17 mg/kg (phosphate binder is often needed)
Magnesium	200–300 mg
Iron	10–15 mg (supplements may be required)
Zinc	15 mg (supplements may be required)
Vitamins (recommended supplementation):	
Pyridoxine HCl (B_6)	10 mg
Ascorbic acid	100 mg
Thiamin (B_1)	2 mg (not routinely)
Folic acid	1 mg (not routinely)
Vitamins A and K	None
Vitamin D	Individualized supplementation

Source:
Nutritional consequences of renal transplantation.
Journal of Renal Nutrition.
2009;19(1):95-100.

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Overview of Disease State

- Common Nutrition Intervention for Early Post-Op

- Transplant diet – Food safety
  - Well-cooked protein
  - Well washed raw fruits and vegetables
  - Pasteurized fruits, vegetables and diary
  - No berries, no black pepper
- Renal with dialysis diet – Renal function
  - 2-3g Na, 2-3g K, 800-1000 Phos, >75g protein
- Low sodium diet – Fluid balance
  - 2-2.4g Na

Patient Profile

- 55 yo African-American male, wife as caregiver
- H/O ESRD on home HD since 2008

- Deemed appropriate for renal transplant by medical team (3/7)
- Admitted for renal transplantation on 3/12
- Surgery Completed on 3/12

Medical/Surgical Data

- H/O DM2 with triopathy; HTN; HLD; ACD; Pancreatitis
- Hypercoagulability (several clotted catheters on the right side)
  - Central IV catheter to bilateral internal jugulars
  - Arteriovenous fistula to bilateral arms
  - Arteriovenous graft to left arms
- Recently broken right foot
- No H/O smoking, alcohol or drug use
- Therapeutic thoracentesis, and cholecystectomy in the past

Nutrition Assessment (3/13)– Anthropometrics

- Dry Wt: 229lb=104kg (per H&P)
- Pre-Op Wt: 247lb=112kg (3/12/17 Per EMR)
- UBW: Fluctuating
- IBW: 172lb=78kg
- % IBW (dry): 133% (dry wt)
- Height: 71 inches=180cm
- BMI: 32Kg/m^2 (Class I Obesity)

Nutrition Assessment (3/13) – Laboratory Values

Labs	**Normal Ranges**	**3/16/17** 0:01-12:00	**3/15/17** 0:01-12:00	**3/14/17** 0:01-12:00	**3/13/17** 0:01-12:00	**3/12/17** 12:01-24:00	**3/12/17** 0:01-12:00	**3/7/17** 0:01-12:00
Sodium	137-145 mmol/L	138	134L	134L	139	132L	137	
Potassium	3.5-5.1 mmol/L	4.0	4.3	4.9	5.6H	5.5H	5.6H	
Urea Nitrogen, Blood	9-20 mg/dL	43H	49H	33H	21H	34H	29H	
Creatinine, Serum	0.7-1.3 mg/dL	6.8H	7.3H	6.0H	5.9H	9.0H	8.4H	
GFR Calc, African	>60mL/mn/1.73	10L	9L	12L	12L	7L	8L	
Magnesium	1.6-2.3 mg/dL	2.1	1.9	1.8	1.9	2.0	1.7	2.3
Phosphorus	2.5-4.5 mg/dL	5.1H	6.0H	4.8H	4.7H		3.0	6.4H
Hemoglobin A1c	0-5.6%							7.8H
Glucose (Finger Stick)	70-125 mg/dL		145-184H	229-258H	164-187H	251H	168H	

Nutrition Assessment (3/13) – Medication

- Tacrolimus – Immunosuppressant (non-steroid), can increase renal labs
- Kayexalate – Potassium binder
- Lantus, Humalog
- Bumex
- Albuterol
- Folic Acid
- MVT/mineral
- Protonix
- NaHCO3
- Bowel Protocol

Nutrition Assessment (3/13) – Nutrient Needs & Diet

- Energy: IBW (25-30kcal/kg)=**1950-2350kcal**
- Protein: IBW (1.2-1.4g/kg)= **95-110g** =380-440kcal (19% total kcal)
- CHO: 1096kcal=274g=**18 CHO** Counting (51% total kcal)
- Fat: 645kcal=72g (30% total kcal)
- Fluid: per MD team

- Diet PTA: Diabetic diet
- Diet In-house:
  - Pre-op: DM, Renal w/ Dialysis -> NPO
  - Post-op: CL -> Transplant, DM, Renal w/ Dialysis, Low Na

Nutrition Diagnosis (3/13) – High Risk

Inadequate Nutrient Intake

Related to

Poor appetite and increased needs post renal transplant;

Tall stature

As evidenced by

Average PO intake = 47% x 6 meals;

POD#1;

5’11”

Nutrition Intervention (3/13) – Early Post-Op

- **Meals and Snacks**: Food preferences; encourage PO intake
- **Supplement**: Consider oral nutrition supplement in house and at home
- **Nutrition-Related Labs and Meds**: RD to check electrolyte status, fluid status, and blood glucose
- **Diet Education**: when appropriate
- **Coordination of Care**

- **Goal**:
  - Avg. PO intake at least 75% of meals

Monitor & Evaluation (3/15)

- Intake: Avg. PO 47% x 6meals after transplantation
- Labs Improving: GFR↑, Creat↓, K ↓
  - Goal Continued: Avg. PO intake at least 75% of meals

- Education:
  - For now: Transplant, renal, diabetic, low sodium diet
  - In the future: diabetic, low sodium diet, with food safety precautions
  - New Goal: Check patient knowledge and understanding about early post-op diet restriction and limit of future diet liberalization

Conclusion

- Normal kidney function, CKD, ESRD, renal transplant
- Nutrition care plan for early post renal transplant patient

- Renal transplant goal: renal labs WNL

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