Case Study

Renal Cell Carcinoma

Presented by
Amber Richards
Disease Process

- Starts in kidney
- Cells in body grow out of control
- DNA mutations

Cancer Development
Risk Factors

• **Lifestyle-related**
  ▫ Smoking, obesity, workplace exposures

• **Genetic/hereditary**
  ▫ BHD syndrome, von Hippel-Lindau disease, hereditary papillary renal cell carcinoma, and familial renal cancer

• **Other**
  ▫ Family history, high BP (phenacetin & diuretics), advanced kidney disease, gender (male), race.
• American Cancer Society’s estimates for 2016
  ▫ ~62,700 new cases will occur
    • 39,650 men  23,050 women
  ▫ ~14,240 will die
    • 9,240 men  5,000 women
Pathophysiology

• Most common type of kidney cancer
• Usually a single tumor within a kidney
• Several subtypes of RCC
  ▫ Clear cell
  ▫ Papillary
  ▫ Chromophobe
  ▫ Rare and unclassified types
Prognosis

General

- Cancer can spread through tissue, lymph, and blood.
- Stages
  - I- <7cm, found only in kidney
  - II- >7cm, found only in kidney
  - III- Any size, found in kidney and 1 or more nearby lymph nodes
  - IV- cancer has spread to other organs, lymph nodes, adrenal gland

Prognosis for pt

- IV- cancer in kidney, bone, lymph nodes
<table>
<thead>
<tr>
<th>Stage</th>
<th>5-Year Survival Rate</th>
</tr>
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<tbody>
<tr>
<td>I</td>
<td>81%</td>
</tr>
<tr>
<td>II</td>
<td>74%</td>
</tr>
<tr>
<td>III</td>
<td>53%</td>
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<tr>
<td>IV</td>
<td>8%</td>
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</tbody>
</table>
# Signs and symptoms

<table>
<thead>
<tr>
<th>Common s/s</th>
<th>Pt’s s/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hematuria (blood in urine)</td>
<td>• Back pain</td>
</tr>
<tr>
<td>• Lower back pain on one side</td>
<td>• Fatigue</td>
</tr>
<tr>
<td>• Mass on the side or lower back</td>
<td>• Lack of appetite</td>
</tr>
<tr>
<td>• Fatigue</td>
<td>• Weight loss</td>
</tr>
<tr>
<td>• Loss of appetite</td>
<td>• Fever</td>
</tr>
<tr>
<td>• Weight loss</td>
<td>• Anemia</td>
</tr>
<tr>
<td>• Persistent fever</td>
<td></td>
</tr>
<tr>
<td>• Anemia</td>
<td></td>
</tr>
</tbody>
</table>
## Significant lab values

### Altered lab values
- Not best indicators
- Complete blood count (CBC)
- High levels of liver enzymes
- High blood calcium
  - Indicates cancer has spread to bones
- Kidney function labs

### Pt lab values
- CDC: normal WBC, and MCHC, low RBC, hemoglobin, hematocrit, MCV, and MCH, elevated RDW-CV
- AST: WNL and elevated
  - 10-52 unit/L
- ALT: WNL, low, and elevated levels
  - 8-63
- Calcium: WNL or low
  - 8.1-9.0 mg/dL
- BUN: WNL until 8/22
  - 24-35 mg/dL (H) 6-21 is normal
- Creatinine: Stayed WNL
  - 0.9-1.36 mg/dL x LOS
- GFR: low
  - 43-61 ml/min/1.73 m²
  - Goal: >60
Treatment

- Surgery*
- Ablation/other local therapies
- Active surveillance
- Radiation therapy
- Targeted therapy
- Immunotherapy
- Chemotherapy*

- Clinical trials ongoing with new types of treatment
Medications

- **Chemotherapy**
  - Everolimus
  - Temsirolimus
  - Axitinib
  - Bevacizumab
  - Pazopanib
  - Sorafenib
  - Sunitinib
- **Immunotherapy**
  - Interferon alfa-2b
  - Interleukin 2
Nutrition Implication

- Side effects of Chemotherapy
  - Mouth sores
  - Loss of appetite
  - N/V
  - Diarrhea or constipation
  - Fatigue
Client History -
Personal and social history

- **Name:** S.B.
- **Age:** 75
- **Married w/ 4 children**
- **From Punjab, India**
  - Living in US since 1994
- **Previously worked on a farm**
  - Now retired
- **Does not drink**
- **Past hx of tobacco use**
  - Pack a day for most of life quit in 2015
Health and surgical history

- 7/15 Radical Nephrectomy
  - Clear cell RCC
  - 3.6cm
  - Upper pole
  - Limited to right kidney
- 5/16 dx stage 2 CKD
- 6/16 CT showed Met and small lytic lesions on spine.
  - Met 5.6cm
- 7/16 CT Biopsy confirmed Clear cell RCC
- 7/16 Pneumonia & UTI
- 7/16 started chemotherapy
- 8/16 ER visit d/t fever, cough, shortness of breath
Anthropometrics

- Ht: 162cm
- Wt: 63.4kg / 139#
- UBW: 68kg / 150#
- Wt change: ↓7% past month
- BMI: 24kg/m²
- IBW: 59.2kg
- %IBW: 107%
- Reference Wt for calculations: actual wt 63.4kg
Weight During Hospital Stay

Weight (kg)
Biochemical data

- **Sodium**: 127-136 mmol/L xLOS
  - Low - 137-146 is normal
- **Potassium**: 3.7-4.8 mmol/L xLOS
  - WNL
- **BUN**: WNL until 8/22
  - 24-35 mg/dL (H) 6-21 is normal
- **Creatinine**: Stayed WNL
  - 0.9-1.36 mg/dL x LOS
- **Magnesium**: WNL
  - 1.8-2.2 mg/dL
- **Phosphorus**: had episodes of low*
  - 1.7-4.1 mg/dL
Glucose levels Level

Mg/dL


Glucose levels

BG level
Food & Nutrition Related History

- Intake: family reported PTA pt had poor intake and had ~10# wt loss in past month
- Pt was fatigued and had limited PO
- Nausea after chemo as well as dry mouth and mouth sores.
- Poor appetite
  - Would only sip or nibble on food, never a full meal
Pt’s medications

- Mometasone-formoterol
- Escitalopram
- Fluticasone nasal
- Azelastine ophthalmic
- buPROPion
- Docusate
- Omeprazone
- Tiotropium
- Tamsulosin
- Aspirin
- Albuterol
- Oxybutynin
- Promethazine-codenine
Nutrition Focused Physical Findings

- Skin intact
- Braden Score 18
  - Declined, now improving 15 8/24
- Slight muscle wasting
- NKFA
- GI: BS present, LBM PTA*
Comparative Standards

- Estimated Needs

- Energy 1900-2500kcal/day (30-40kcal/kg/day)
- Protein 76-127g/day (1.2-2g/kg/day)
- Fluid 1900-2200ml/day (30-35ml/kg/day)

- Based on actual weight for repletion
Secondary diagnoses

- Pneumonia
- Hypoxemia
- Hyponatremia
- Anemia*
- Acute UTI
- Elevated BNP – brain natriuretic peptide – levels
- Fever*
- Shortness of breath
- Hypertension*
Hospital Course of Stay

- 8/11 admitted with hypoxia
- 8/12 pt was doing better and MD expected d/c soon
- 8/13 suspected pulmonary edema
- 8/14 RD consult received – sent boost
- 8/15 Initial Nutrition Assessment
- 8/16 CT showed metastatic growth of cancer
- 8/16 transferred to IMC, MD notes deteriorated
  - Ground-glass appearance of the lung tissue, tachycardic, tachypneic, lymphangitic spread of RCC
- 8/17 NG FT placed
- Palliative care plan to d/c with hospice home*
Nutrition Diagnosis / PES

- Severe malnutrition related to increased nutrient needs due to illness as evidenced by 7% wt loss in one month and <50% estimated energy requirements over past month.

- Inadequate oral intake r/t BiPAP and rapid desaturation AEB NPO*
Goals

- Meet nutrition needs
- PO greater than 50%*
- Weight gain/repletion
Nutrition Intervention

1. Regular diet and Boost TID
2. If PO did not improve*
   - FT: Fibersource initiate at 15ml/hr, increase 10ml/hr Q12hr to goal rate 85ml/hr
   - Provided 2448kcal/day (39/kg) 110g protein (1.7/kg)
   - Thiamin 100mg PO/FT daily
   - MVT w/ minerals PO/FT daily
Nutrition Monitoring & Evaluation

- Meeting nutrition needs
- PO >50%*
- Wt gain/repletion
- Feeding tube rate/tolerance*
- Re-feeding labs (Mg, K, Phos daily until stable)
Summary

- Pt’s prognosis is terminal
  - Nutrition support nourished pt while he made plans
- Next time
  - Start nutrition support sooner
References


NUTRITION CASE STUDY PRESENTATION EVALUATION

Intern Name: Amber Richards  Topic: Renal Cell Carcinoma

Directions: For each criterion, mark the appropriate number corresponding with the scale shown below indicating the intern’s skill compared to that of an entry-level dietitian. Write suggestions to help the intern improve in comments section. Total all criteria to calculate score.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>SCALE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepares in Advance for Presentation: (CRD 2.11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Arranges date and time, reserves room</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>▪ Sets up needed equipment, audiovisuals are tested and working beforehand, gives out handouts &amp; evaluation forms</td>
<td></td>
<td></td>
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<tr>
<td>Uses Effective Presentation Techniques: (CRD 2.2, 3.2)</td>
<td></td>
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<tr>
<td>▪ Presents ideas logically; uses good transitions between subtopics.</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ Speaks clearly with proper grammar/pronunciation; fluent use of terminology; projects voice &amp; varies tone</td>
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<td></td>
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<tr>
<td>▪ Speaks with authority on topic and with enthusiasm; poised, articulate, confident</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ Has good eye contact limiting referral to notes</td>
<td></td>
<td></td>
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<tr>
<td>▪ Utilizes audio/visual aids which strengthen the message</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ Includes in-text citations (on slides) and a list of references</td>
<td></td>
<td></td>
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<tr>
<td>▪ Covers information in given time limit (40-50 min with 5-10 min for questions; answering questions effectively)</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>Review of Pathophysiology for Disease State:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Explains primary disease process; defines disease</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ Discuss usual etiology and occurrence of disease</td>
<td></td>
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<tr>
<td>▪ States usual prognosis for disease &amp; prognosis for patient</td>
<td></td>
<td></td>
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<tr>
<td>▪ Summarizes symptoms of disease, correlates with pt symptoms</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ Identifies significant lab values; discusses lab abnormalities associated with disease, correlates pt labs with normal values</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ Discusses usual surgical/medical treatment for disease &amp; treatment planned or completed for the patient</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ Discusses pertinent medications prescribed for the primary dx</td>
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<tr>
<td>Nutrition Implication in the Disease (CRD 2.11)</td>
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<tr>
<td>▪ Discuss rationale for recommended dietary modifications and/or diet order based on disease process</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>Nutrition Assessment Information: (CRD 2.11, 3.1a)</td>
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<tr>
<td>▪ PERSONAL HX: Uses initials to identify patient, specifies age, gender and race, etc.; indicates admission date if appropriate</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ PAST MEDICAL HX: Reviews patient and family medical and surgical history</td>
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<tr>
<td>▪ SOCIAL HX: Addresses housing, economic, religious, psychological, occupation, geography, and stress hx as it relates to primary disease; social/medical support</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>▪ Specifies primary and secondary dx for this admission</td>
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<tr>
<td>▪ ANTHROPOMETRIC: Addresses Ht/Wt, Wt changes, BMI, etc.</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td>▪ BIOCHEMICAL: Correlates labs, medical tests/procedures, of patient with normal values</td>
<td>1 2</td>
<td>3 4 5</td>
</tr>
<tr>
<td>▪ PHYSICAL FINDINGS: Presents significant findings from nutrition-focused physical exam &amp; other related data</td>
<td>1 2</td>
<td>3 4 5</td>
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<tr>
<td><strong>Food/Nutrition Related Hx:</strong></td>
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<td>--------------------------------</td>
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<tr>
<td>Includes diet hx, typical diet followed at home, average intake, admission diet order, etc.</td>
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<tr>
<td>Addresses any home meds &amp; herbs taken and possible interactions.</td>
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<tr>
<td>Discusses pt knowledge/beliefs/attitudes/behavior related to primary concerns of admission</td>
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<tr>
<td>Addresses any issues related to food access and safety</td>
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<tr>
<td>Discusses patient's physical activity history as applicable</td>
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<tr>
<td>1 2 3 4 5</td>
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</tbody>
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<thead>
<tr>
<th><strong>Nutrition Diagnosis:</strong> (CRD 2.11, 3.1b)</th>
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<tbody>
<tr>
<td>Diagnoses appropriate nutrition problems and creates PES statements; utilizes standardized language</td>
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<tr>
<td>1 2 3 4 5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nutrition Intervention:</strong> (CRD 1.2, 1.3, 2.11, 3.1c)</th>
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<tbody>
<tr>
<td>Discusses a nutrition prescription that may include optimal dietary intake of energy, specific foods or nutrients; should be realistic for patient's condition</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
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</tbody>
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<thead>
<tr>
<th><strong>Nutrition Monitoring and Evaluation:</strong> (CRD 2.11, 3.1d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritizing nutrition diagnoses, describes and justifies (cites reference) intervention strategies used, and/or recommended</td>
</tr>
<tr>
<td>Compares any difference found between what was done and what is recommended for the specific diagnosis or disease state</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Lists goals that are measurable, achievable, and time-defined</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifies factors or influences that may prevent the interventions from being successful</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nutrition Monitoring and Evaluation:</strong> (CRD 2.11, 3.1d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lists specific indicators/measures that were or could have been monitored/evaluated to determine the progress of the patient</td>
</tr>
<tr>
<td>These should link back to the dx, prescription, goals, interventions, or initial assessment findings</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Summary/Conclusion (CRD 1.2, 2.11, 3.2)</strong></th>
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<tbody>
<tr>
<td>Summarizes prognosis of patient and effectiveness of nutrition care plan</td>
</tr>
<tr>
<td>Discusses realistic/practical applications and recommendations for practice that are based on research</td>
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<tr>
<td>Discusses what they might do differently the next time they worked with a patient in a similar situation</td>
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<tr>
<td>1 2 3 4 5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Intern’s Overall Score</th>
<th>94/100 points</th>
</tr>
</thead>
</table>

**Overall Comments:**

1. What are the intern's areas of strength?
   - Very detail-oriented and thorough explanation of disease process, able to piece together all information well

2. What could the intern do to improve performance?
   - Better time management, focus more on nutrition assessment/ intervention instead of pathophysiology

**Signatures:**

Evaluator: [Signature]  Intern: [Signature]  Date: 9/30/10