Mood and Diabetes for the Refresher Course

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Disclosures?

• Kate Jansen has no financial interests to disclose
• Alison Lynch has no financial interests to disclose
Objectives

• Describe the relationship between diabetes and depression
• Utilize evidence-based screening and behavioral intervention tools for patient care
• Implement care management strategies to improve patient outcomes
One of your patients

- 45 yo female
- Problem list: diabetes (A1C=8.1, metformin 850mg bid), obesity (BMI=31), HLP (LDL 124 on simvastatin 20mg)
- Has seen a dietitian, trouble following dietary recommendations, eats well but then binges at night and on weekends
- Not exercising (can’t seem to get started)
- Misses or late cancels some appointments
- What would you do at this point?
Overview, epidemiology

- Diabetes—chronic disease characterized by insulin resistance (type 2) or insulin hypoproduction (type 1)
  - 8.3% of US population has diabetes
  - 90-95% of diabetes is type 2
  - Costly, debilitating
  - Various treatment options
  - A risk factor for depression
  - Cardiovascular disease is leading cause of death
Overview, epidemiology

• Depression—mental illness characterized by persistent low mood and associated symptoms
  – Prevalence: 9% (depr), 4% (maj depr)
  – Costly, debilitating
  – Associated with absenteeism, disability, decreased productivity
  – Various treatment options
  – ~50% of people with depression are untreated
  – A risk factor for diabetes and cardiovascular disease
County-level Estimates of Diagnosed Diabetes among Adults aged ≥ 20 years:
United States 2010

Percent Quartiles

- 0 - 9.2
- 9.3 - 10.7
- 10.8 - 12.3
- >12.4

www.cdc.gov/diabetes
Age-standardized* percentage of adults meeting criteria for current depression,^ by state/territory — Behavioral Risk Factor Surveillance System, United States, 2006 and 2008§

* Age standardized to the 2000 U.S. standard population.
^ Based on responses to Patient Health Questionnaire 8.
§ Data presented were collected by 16 states in 2008 and by 29 different states, the District of Columbia, and two territories in 2006. Five states (Kentucky, New Jersey, North Carolina, Pennsylvania, and South Dakota) did not participate in either year. Nine states (Hawaii, Kansas, Louisiana, Maine, Mississippi, Nebraska, North Dakota, Vermont and Washington) participated in both years, but only 2008 data were included.

Data Source: CDC. Current Depression Among Adults --- United States, 2006 and 2008. MMWR 2010;59(38);1229-1235. (this map includes revised state estimates)
Diabetes associated with high rate of depression

• Primary care patients with diabetes
  – 31% report depression symptoms
  – 11% have major depression

• Risk factors for depression include: female, younger age, less education, single, BMI > 30, smoking, more medical comorbidity, treated with insulin, higher A1C, more diabetic complications
Non-Adherence in Diabetes

- Overall non-adherence – 50%
- Non-adherence to medication – 20%
- Non-adherence to glucose testing – 30-35%
- Non-adherence to diet – 60%
- Non-adherence to exercise – 60%

Peyrot, Rubin, Lauritzen, Snoek, Matthews, & Skovlund, 2005
Diabetes Attitudes, Wishes and Needs (DAWN) Study
Depression makes it harder to manage diabetes

• Among people with diabetes, those with depression are more likely to
  – Report diabetic symptoms
  – Have more office visits
  – Have more same-day appointments
  – Have more missed visits
  – Be disabled
  – Have a higher mortality rate
Negative Emotions and Blood Glucose

- Laboratory stressors and blood glucose  
  *(Blake et al., 2001; Goetsch et al., 1993)*
- Relaxation and lower blood glucose  
  *(Henry et al., 1997; Miley, 1989)*
- Daily relations between blood glucose and emotions  
  *(Aikens et al., 1994; Aikens et al., 1997; Goetsch et al., 1990)*
Negative Emotions and Diabetes Management

• Associations with poor diabetes management
  – (Korbel et al., 2006)

• Emotion and impulsive behavior
  – (Balfour et al., 1993)
In a cohort of patients with poorly controlled diabetes, those with poor adherence were more likely to have depression (compared to people with poor control despite better adherence to treatment).
Relationship between mood and diabetes

• Why do we care?
  – Depression makes diabetes worse
  – It is harder to get diabetes under control if depression is not treated
  – People with uncontrolled depression are more likely to develop diabetes
  – Treatment of depression improves glycemic control in people with diabetes
Screening for depression

- PHQ-9
  - In primary care
  - Cut off of 10
  - Sensitivity 88 for MDD (50)
  - Specificity 88 for MDD (81)
PATIENT QUESTIONNAIRE

Patient Name: ___________________  Provider: ___________________  Date: ______________

1. Over the last 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
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</thead>
<tbody>
<tr>
<td>a. Little interest or pleasure in doing things</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>b. Feeling down, depressed, or hopeless</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>c. Trouble falling/staying asleep, sleeping too much</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>d. Feeling tired or having little energy</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>e. Poor appetite or overeating</td>
<td></td>
<td>✔</td>
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<td>f. Feeling bad about yourself – or that you are a failure or have let yourself or your family down</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>g. Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<td>h. Moving or speaking so slowly that other people could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual.</td>
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<td>✔</td>
<td>✔</td>
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<td>i. Thoughts that you would be better off dead or of hurting yourself in some way.</td>
<td>✔</td>
<td>✔</td>
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2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

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<tr>
<th>Difficulty Level</th>
<th>Not difficult at all</th>
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<th>Very Difficult</th>
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<tr>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
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3. If these problems have caused you difficulty, have they caused you difficulty for two years or more?

   _____ Yes, I have had difficulty with these problems for two years or more.
   _____ No, I have not had difficulty with these problems for two years or more.

Number of Symptoms: __________

Total Score for first 9 Questions: __________

Function Score (Question 2): __________
PHQ9

• Score less than 4 is suggestive of no depressive illness
• Score 15 or greater suggestive of depressive illness, specifically recommends psychotherapy, medication or both in combination
• In between, suggests that clinicians use their best judgment in the context of symptom duration and level of functional impairment
Sleep apnea

overeating

Can’t play with kids due to weight and pain

Bad arthritis in knees, uses a cane

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<th>Duration</th>
<th>Number</th>
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</table>
Assuming 10% prevalence

<table>
<thead>
<tr>
<th></th>
<th>PHQ9</th>
<th>PHQ2</th>
<th>usual care</th>
</tr>
</thead>
<tbody>
<tr>
<td>false negative</td>
<td>8.8</td>
<td>8.3</td>
<td>5</td>
</tr>
<tr>
<td>true positive</td>
<td>79.2</td>
<td>81</td>
<td>5</td>
</tr>
<tr>
<td>true negative</td>
<td>10.8</td>
<td>9</td>
<td>73.2</td>
</tr>
<tr>
<td>false positive</td>
<td></td>
<td></td>
<td>16.7</td>
</tr>
</tbody>
</table>
Behavioral Activation
Depression

- Poor mood
- Feeling Guilty and Ineffective
- Fatigue, Low Energy, Decreased Interest
- Decrease activities, Neglecting responsibilities

Credit: Center for Clinical Interventions http://www.cci.health.wa.gov.au/resources
Depression and Diabetes

- Depression
  - Fatigue; Irritability
  - Worsened Diabetes Control
  - Poor BG Control; Increase in Weight
- Decrease in Adherence
  - Anhedonia; Low Energy
  - Increase in Weight

Worsened Diabetes Control
Depression

Anhedonia; 
Low Energy
Decrease in 
Adherence
Poor BG Control; 
Increase in Weight

Worsened 
Diabetes Control
Fatigue; 
Irritability

Improved 
Mood
Greater energy & 
motivation

Hopeful; Less guilty

Improved diabetes control

Increased 
Activity

Improved 
adherence
Behavioral activation treatments of depression: A meta-analysis

- “Activity Scheduling” therapy
  - Randomized effect studies of activity scheduling
  - 16 studies, 780 subjects, pooled data
  - Sixteen studies with 780 subjects were included. The pooled

- Results
  - Large effect size
Behavioral Activation
(handout)

• Fun Activities Catalogue: “Anything on this list that you might be neglecting?”
  – Emphasize importance of fun, low cost, relationship enhancing

What activities have you been neglecting? Keep a balance between:

• Exercise
• Having Fun
• Responsibilities

List 1-3 activities that you plan to do or accomplish between now and your next visit with your provider:

credit: Brandt-Kreutz 2014
Behavioral Activation Pearls

• “Between now and our next visit...”
• “I am going to ask you about what you did...”
• Handouts
Creating S.M.A.R.T. Goals

- **Specific**
- **Measurable**
- **Attainable**
- **Realistic**
- **Time-bound**
• Must treat both diabetes and depression to get both under control, patients do better if both conditions addressed
Some antidepressants are better choices than others

<table>
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<th>Medications</th>
<th>May cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tricyclic antidepressants</td>
<td>Hyperglycemia, weight gain, carbohydrate craving (also used for diabetic neuropathic pain)</td>
</tr>
<tr>
<td>MAOIs</td>
<td>Hypoglycemia, weight gain</td>
</tr>
<tr>
<td>SSRIs***</td>
<td>Hypoglycemia/better glycemic control, appetite reduction</td>
</tr>
<tr>
<td>Wellbutrin***</td>
<td>Appetite reduction, weight loss, improved sexual functioning</td>
</tr>
<tr>
<td>Mirtazapine</td>
<td>Weight gain</td>
</tr>
<tr>
<td>Venlafaxine</td>
<td>Hypertension (at higher doses)</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>Weight gain, appetite increase, metabolic syndrome</td>
</tr>
<tr>
<td>Cognitive Behavior Therapy***</td>
<td>Improves glycemic control in depressed DM2 pts</td>
</tr>
</tbody>
</table>
Collaborative care

- Multicomponent, healthcare system-level intervention that uses case managers to link primary care providers, patients, and mental health specialists.
Collaborative care for the management of depressive disorders

• Improve the *routine screening* and diagnosis of depressive disorders

• Increase provider use of *evidence-based protocols* for the proactive management of diagnosed depressive disorders

• Improve clinical and community support for *active patient engagement* in treatment goal setting and self-management
Care management

• Care manager roles:
  – Patient education
  – Patient follow up to track depression outcomes and adherence to treatment
  – Adjustment of treatment plans for patients who do not improve

• PCP roles:
  – Routine screening for and diagnosing of depressive disorders
  – Initiating treatment for depression
  – Referring patients to mental health specialists as needed

• Facilitated by:
  – Technology-based resources such as electronic medical records, telephone contact, and provider reminder mechanisms.
Tools for self care

- www.diabetes.org
- www.Diabetes123.com (kid focus)
- www.MyDiabetes.com

Apps
- Glucose buddy (iphone, android; free)
- Diabetes Companion by mySugr (iphone, android; free)
- Wavesense Diabetes Manager (iphone only; free)
You decide to check if depression is complicating your patient’s diabetes

- Patient screens positive for depression
- You recommend treatment (meds +/- psytx)
- Your staff provide education and help patient set some goals to focus the plan
- You have your nurse call patient every week for first month to assess symptoms and pt’s engagement with treatment
A breakthrough with your patient

• Your patient becomes more engaged with self cares
• Depression improves, A1C and LDL at goal, she is exercising regularly and has lost 5 pounds
Review slide

• When diabetes and depression co-occur, they make each other worse
• Treatment of one condition can be difficult if the other condition is untreated
• Depression is often overlooked, screening helps
• Good options exist to help patients who have diabetes and depression
Special issues for Type I Diabetes

• For endocrine talk