

MHIF Research Highlights: JANUARY 2020

SHARING EXPERTISE:

Dr. Miedema was featured in *Men's Health Magazine...* in an article, "The Great Millennial Blood Pressure Problem," addressing why high blood pressure is rising for millennials.

MHIF on KSTP Channel 5 News!

Dr. Scott Sharkey and patient, Kristen Bowlds were interviewed by the local KSTP, Channel 5 news for a story about women's heart research and Kristen's experience with SCAD.

FEATURED MHIF STUDIES

Open for Enrollment and Referrals!

HITSOVA for heparin induced thrombocytopenia

CONTACTS: Carina Benson, 612-863-4393 and Jane Fox, 612-863-6289

VESALIUS for high cardiovascular risk without prior myocardial infarction or stroke

CONTACT: Ezi Ebere, 612-863-4393

REDUCE LAP-HF RCT II for heart failure

CONTACT: Jane Fox, 612-863-6289

MARK YOUR CALENDARS

**Heart Valve Awareness
Event for Patients!**
Thursday, February 20
Minnesota Valley Country Club



REGISTER:
[Mplsheart.org/valveday](https://mplsheart.org/valveday)

Shout out of gratitude for Dr. Wang's support of research...



Dr. Wang is appreciated by research staff for always being so open to research and speaking with his patients about the studies! After he gives the introduction, patients are often interested in participating and we are grateful!

HOPE
DISCOVERED HERE™

**Minneapolis
Heart Institute
Foundation**
Creating a world without heart and vascular disease

DOES THE MIND MATTER?

MHIF GRAND ROUNDS JANUARY 27TH 2020

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PSYCHIATRY CONSULT-LIAISON SERVICES
ALLINA HEALTH
JANUARY 27TH 2020



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No affiliations to disclose

OBJECTIVES



Introduction to psychiatric CL services and scope



Cardiovascular illnesses and mental health



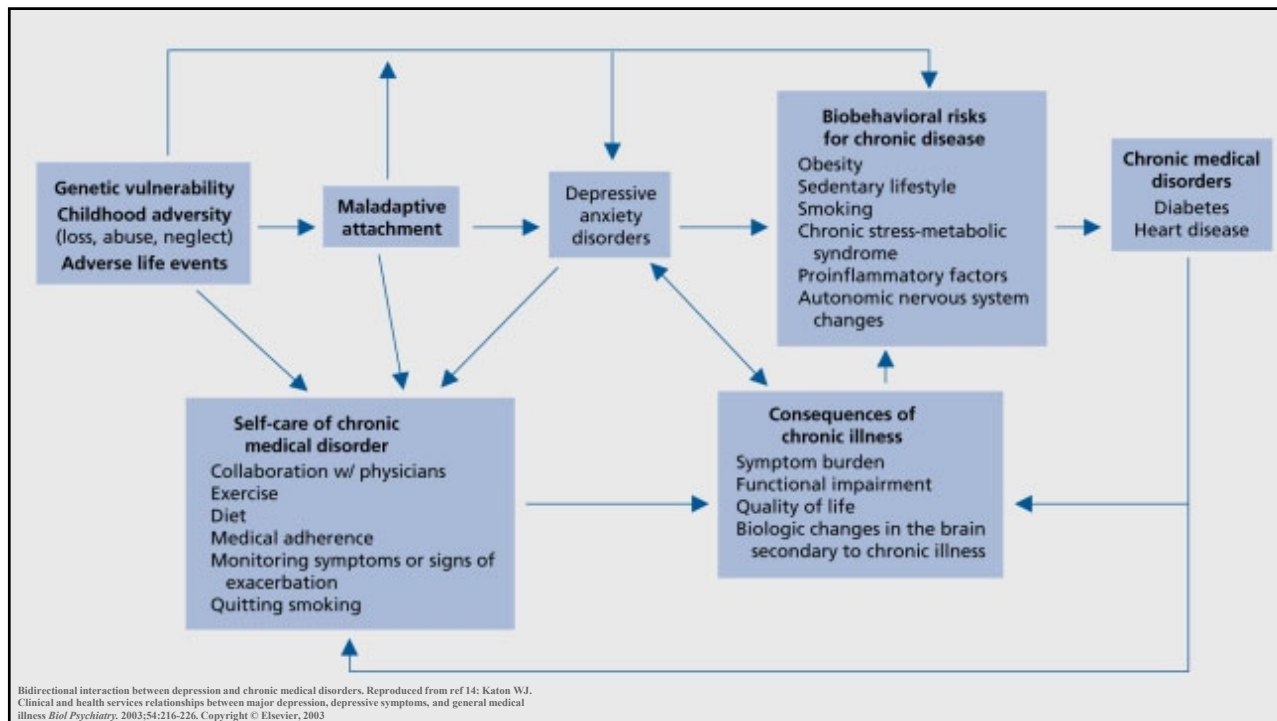
Assessment and treatment of depression

ANW PSYCHIATRY CONSULT-LIAISON SERVICE

- Two psychiatrists and a NP on a given day
- Cover the ANW med/sur, cardiology, neurology, ICU, MBC, CKRI.
- Mon-Frid and urgent coverage on the weekends
- Largest portion of consults are for depression and anxiety.
- Delirium, dementia with behavioral disturbance
- Dual diagnosis
- Conversion disorders, somatic symptom disorders
- Capacity
- Other mental illnesses
- Medications

MENTAL HEALTH IN CONTEXT OF MEDICAL ILLNESSES

- Psychiatric illnesses as a risk factor for medical problems
- Psychiatric treatment as a risk factor
- Medical illnesses causing psychiatric problems
- Psychosomatic issues
- Mental health is not only the absence of diagnosable illnesses



WHAT MIND?



COGNITION



MOOD –
AFFECT



PERSONALITY



X-FACTOR

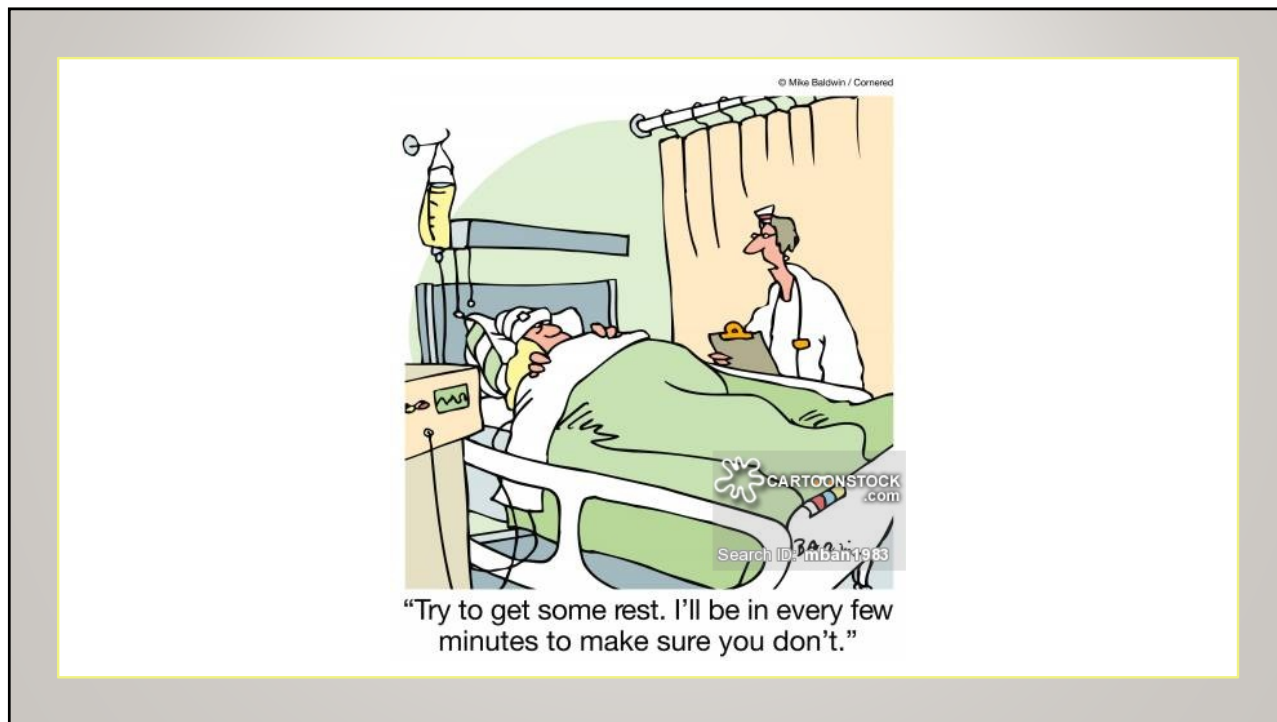
PSYCHIATRIC ISSUES IN CARDIOLOGY

PSYCHIATRIC ILLNESSES AS A RISK FACTOR

- It is estimated that patients with severe mental illness lose 25 or more years of life expectancy. Majority of those due to cardiovascular diseases.
- Chronic stress. Anxiety disorders. Panic disorders.
- Patients suffering from PTSD have increase in basal HR, and BP. PTSD can result in physiological dysregulation of the hypothalamic pituitary adrenal axis (HPA) which may contribute to cardiovascular risk factors.

OTHER PSYCHIATRIC CONSIDERATIONS

- Eating disorders
- Substance use disorders
- White Coat Syndrome/hypertension
- Broken heart syndrome



PSYCHIATRIC TREATMENT AS RISK FACTOR

- Antipsychotic medications
- Lithium
- Tricyclic medications
- Stimulants

DEPRESSION AND CVD

- Many years of research on the bidirectional relationship with depression and CVD.
- One out of 5 patients with CVD have depression.
- 2.5 times higher the mortality rate for depressed patients
- American Heart Association advisory focuses on screening, referral, and treatment of depression for primary care providers and cardiologists.
- Outcomes have shown treatment can reduce depression, but not enough research has been on if treating depression improves cardiac outcomes.

DEPRESSION OVERVIEW

DSM 5(1 diagnosis of Major Depressive disorder

Five or more for the following symptoms during at least 2 weeks

- Depressed mood
- Diminished interest or pleasure
- Significant weight loss/gain, or decrease/increase in appetite
- Insomnia or hypersomnia nearly every day
- Psychomotor agitation/slowing nearly every day
- Fatigue or loss of energy
- Feelings of worthlessness, or excessive guilt
- Diminished ability to think or concentrate, indecisiveness.
- Recurrent thoughts of death, recurrent SI with or without a plan.

DIFFERENTIAL DIAGNOSIS

- Mood disorder due to another medical condition
- Adjustment disorder with depressed mood
- Substance/medication induced depressive (mood disorder)
- Mixed episode of bipolar disorder
- Sadness, grief, post-partum depression, dysthymia (persistent depressive disorder)

PHQ-9

- A nine-item self-report, standardized rating scale that measures severity of depressive symptoms and response to treatment.
- >20 indicates severe depression
- <5 indicates remission
- A decrease $\geq 50\%$ indicates a clinically significant response

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "N" to indicate your answer)

| | Not at all | Several days | More than half the days | Nearly every day |
|---|------------|--------------|-------------------------|------------------|
| 1. Little interest or pleasure in doing things | 0 | 1 | 2 | 3 |
| 2. Feeling down, depressed, or hopeless | 0 | 1 | 2 | 3 |
| 3. Trouble falling or staying asleep, or sleeping too much | 0 | 1 | 2 | 3 |
| 4. Feeling tired or having little energy | 0 | 1 | 2 | 3 |
| 5. Poor appetite or overeating | 0 | 1 | 2 | 3 |
| 6. Feeling bad about yourself...or that you are a failure or have let yourself or your family down | 0 | 1 | 2 | 3 |
| 7. Trouble concentrating on things, such as reading the newspaper or watching television | 0 | 1 | 2 | 3 |
| 8. 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 | 0 | 1 | 2 | 3 |
| 9. Thoughts that you would be better off dead, or of hurting yourself | 0 | 1 | 2 | 3 |

add columns: + + + +

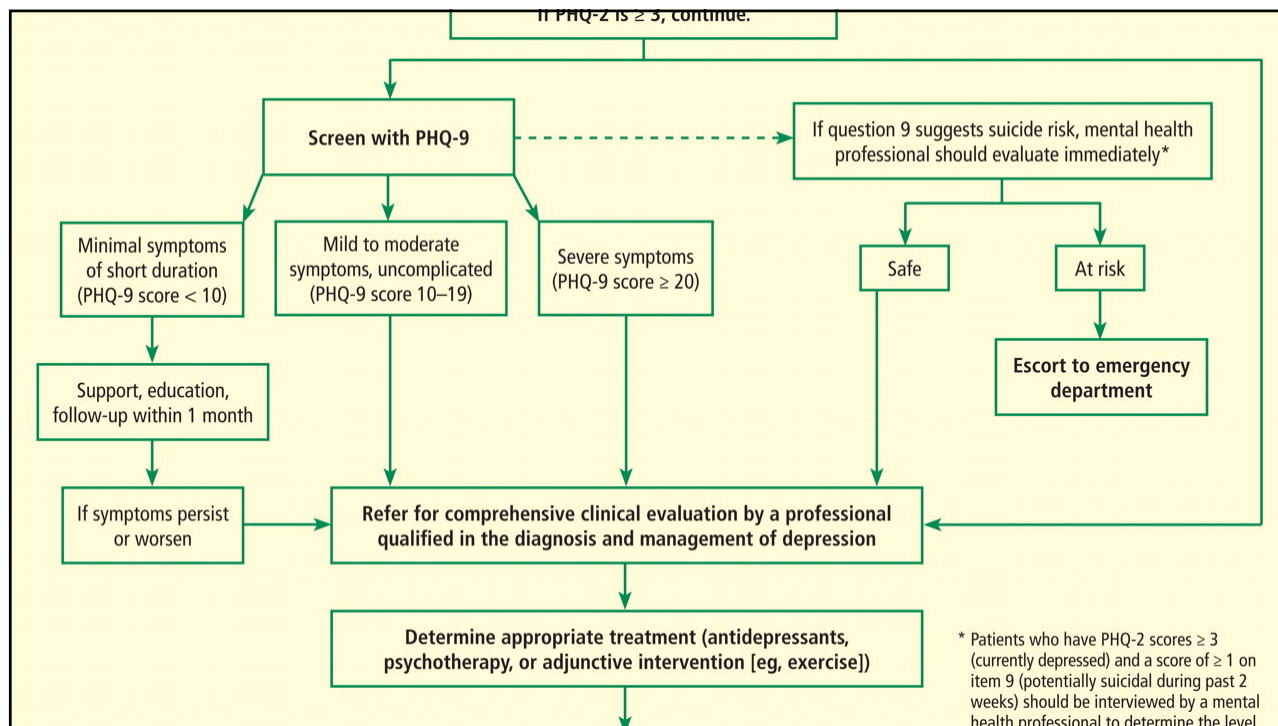
(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card)

TOTAL: _____

10. If you checked off any problems, 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?

| | |
|----------------------|-------|
| Not difficult at all | _____ |
| Somewhat difficult | _____ |
| Very difficult | _____ |
| Extremely difficult | _____ |

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EPIDEMIOLOGY

- Life time prevalence in the general population: >20 %
- 12 month prevalence ~7-10%.
- Patients with chronic illnesses have been found to have 2-3 fold higher rates of MDD
 - Diabetes 12-18%, CHD 15-23%, COPD/Asthma 20-50%
 - MS 40-60%, Alzheimer's 30-50%, stroke 14-19%

HEALTH OUTCOMES

- Comorbid depression is associated with
 - Increased medical symptom burden
 - Increased functional impairment
 - Higher medical cost
 - Poorer adherence to treatment recommendations/self care
 - Increased risk of morbidity and mortality.

Treating depression



Setting

- Most patients are being seen primarily in primary care
- Multiple studies show depression underrecognized and therefore undertreated
- Collaborative care models improving outcomes



Treatment options

- Medications
- Psychotherapy
- Exercise

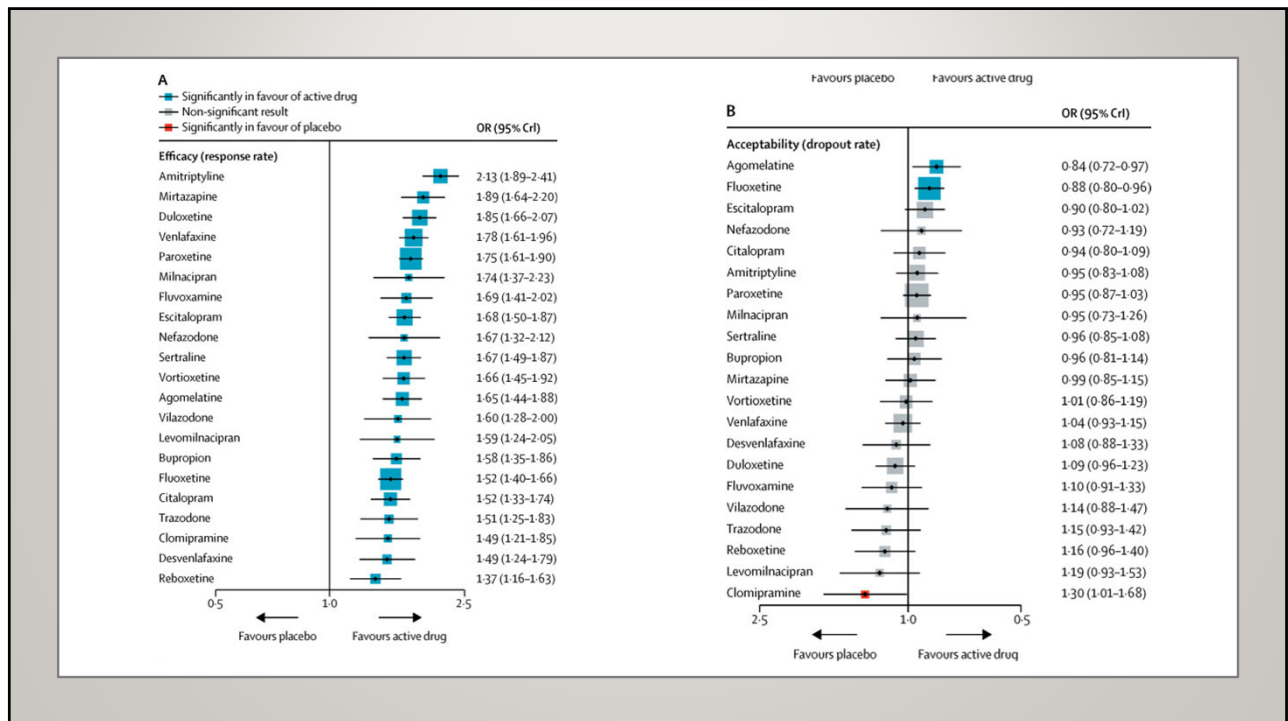
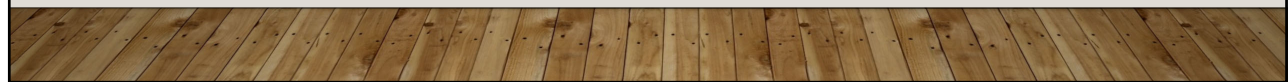


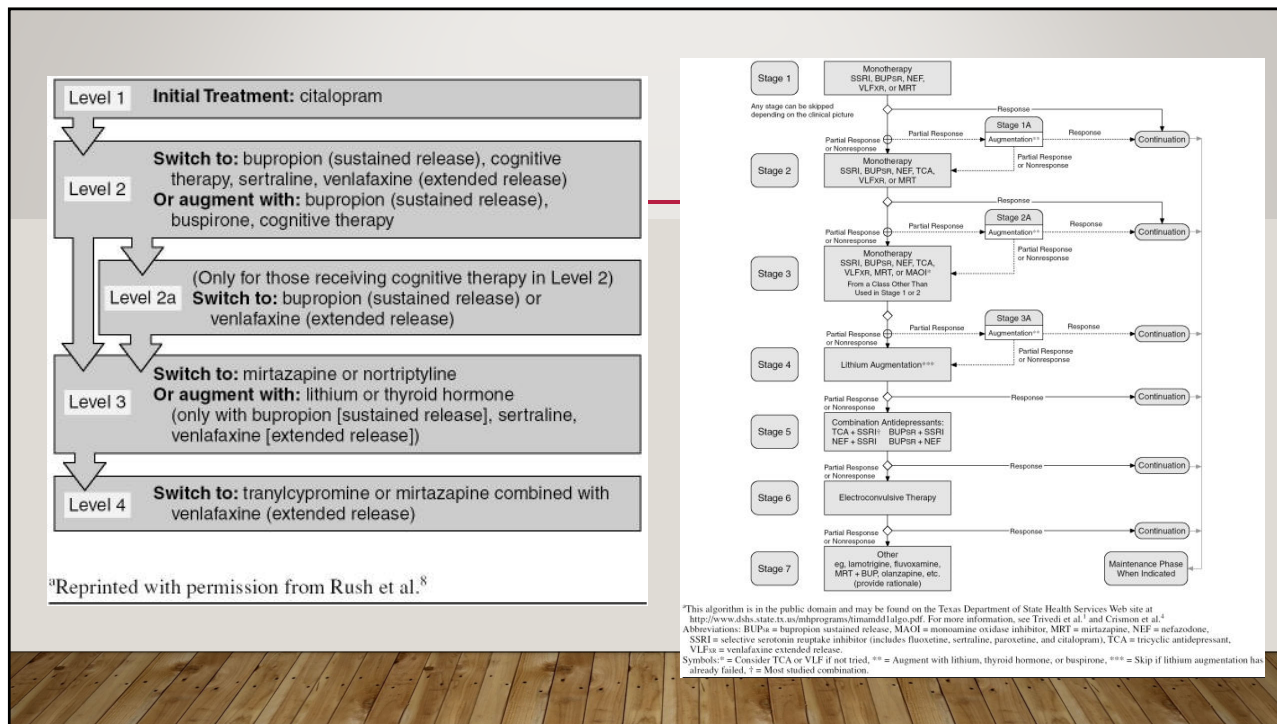
Outcomes

- Improved depression
- Not necessarily improved chronic illness
- Secondary gain including adherence, cost
- Ongoing studies on preventative outcomes

TREATMENT OF MDD - MEDICATIONS

- Medications are recommended for treatment of moderate to severe depression.
- 60% of patients with MDD fail to remit with initial pharmacotherapy and with each subsequent trial, smaller proportions remit.
- Treatment resistant or refractory depression that fails to remit after at least separate and adequate trials for antidepressants from two different classes.
 - Risk factors; the longer the episode of depression – increased atrophy in hippocampus
 - ? Bipolar depression
 - Lack of symptomatic improvement in the first few weeks of treatment
 - Comorbid symptoms/disorders
 - Genetic variants for the P450 metabolizing system





MEDICATION MANAGEMENT OF DEPRESSION

1st line treatment SSRI's

- Fluoxetine, sertraline, citalopram, escitalopram, paroxetine
- Newer medications available – might be better tolerated, but increased cost
- Vortioxetine, vilazodone

2nd line treatment

- Venlafaxine, duloxetine, mirtazapine, desvenlafaxine

Adjunct treatment with atypical antipsychotics, stimulants

Tricyclics and MAOIs

ECT, TMS

FIRST LINE TREATMENT SSRI/SNRI

FLUOXETINE, SERTRALINE,
CITALOPRAM,
ESCITALOPRAM
PAROXETINE
VENLAFAXINE
DESVENLAFAXINE
DULOXETINE

Side effect profile guides a lot of our choices in treatment

- Headaches, activation/sedation, insomnia/drowsiness, upset stomach, dizziness – go away
- Dose related; tremor, QT prolongation (citalopram/escitalopram), sexual side effects
- Increased risk for bleeding during the perioperative period. In combination with warfarin due to increased prothrombin ration or INR response due to decreased platelet aggregation secondary to depletion of serotonin in platelets.
- Can induce SIADH.
- Osteoporosis
- SNRI anticholinergic effects, modest sustained increase in blood pressure, tachycardia.
- Discontinuation syndrome,

BUPROPION

- NE and DA modulator
 - No weight gain, sedation, sexual dysfunction
 - Helpful for neurovegetative symptoms
- Caution with
 - Seizure
 - Brain tumor
 - Alcohol
 - Eating disorder
- Caution with anxiety

MIRTAZAPINE

- Increases NE and 5HT3
 - Blocks alpha 2 adrenergic presynaptic receptor
- Receptor antagonism
 - Serotonin (2A, 2C, 3)
 - Muscarinic
 - Histaminergic (H1)
 - Peripheral alpha 1 adrenergic
- Use of side effects – antiemetic, sleep aid, appetite stimulation
- Caution with orthostasis
- No sexual side effects
- Earlier onset
- Does not affect p450
- Caution with renal impairment
- “California rocket fuel” - venlafaxine

TRICYCLICS AND TETRACYCLICS

- Amitriptyline
- Nortriptyline
- Doxepin
- Imipramine
- Clomipramine
- Desipramine
- Analgesic, sedative
- Anticholinergic, antihistaminic
- Caution
 - Cardiac conduction / hypotension / arrhythmia
 - Cognitive blunting / deliriogenic
 - Lethal in overdose

CNS STIMULANTS

METHYLPHENIDATE

- DA, NE reuptake inhibitor and releaser
- Optimal for TRD, medical patients
 - Rapid onset
 - Analgesic properties
 - Palliative / demoralization
 - Post-stroke
 - Cognitive dysfunction
- SE: CV effects, anorexia, seizures, psychosis, abuse potential

MODAFANIL

- DA reuptake inhibitor
- Augmentation for antidepressants
 - Fatigue, sleepiness sx
- Less abuse potential
- No appetite impact

WHAT IS ADEQUATE?

- Duration: generally treat for 6 to 12 weeks before deciding whether a response is sufficient.
- If patients show very little improvement (a reduction of baseline symptoms ≤ 25 percent) after four to six weeks, move to the next step.

WHEN TO REFER?

- Refer for
 - Multiple failed trials (2-4)
 - Ongoing mood or behavior dysregulation
 - Suicidal, homicidal, psychotic, or catatonic

PSYCHOTHERAPY

Cognitive behavioral therapy:

- Addresses thoughts, feelings and behaviors that affect mood
- Helps identify and change distorted or negative thinking patterns
- Teaches skills

Acceptance and commitment therapy.

- Helps engage in positive behaviors, even when you have negative thoughts and emotions

Interpersonal psychotherapy.

- Focuses on resolving relationship issues

Family / marital therapy.

Psychodynamic treatment.

- Aims to resolve underlying problems
- Explores feelings and beliefs in-depth

Dialectical behavioral therapy.

- Helps build acceptance strategies and problem-solving skills
- Useful for chronic suicidal thoughts or self-injury behaviors

Group psychotherapy.

ADDITIONAL OPTIONS/PROCEDURES

- **Light therapy** – seasonal component
- **Electroconvulsive therapy (ECT).**
 - Requires anesthesia
 - Elicits a brief seizure
 - Side effects of anterograde amnesia
 - Brief, unilateral ECT with lower cognitive impact
- **Repetitive transcranial magnetic stimulation (rTMS).**
 - Usually only after trial of ECT has failed
 - Uses an electromagnetic coil placed against the scalp to stimulate nerve cells
 - Fewer cognitive symptoms
 - More tolerable than ECT
- **Vagus nerve stimulation (VNS).**
 - Usually only after other brain stimulation therapies have not been successful
 - Stimulation of the vagus nerve with electrical impulses through an implant in the chest to the neck to the mood centers in the brain
 - 12 month response of 30% or more

SUICIDALITY

- Part of screening with instruments like the PHQ9
- Depression as a risk factor is estimated to count for 60% of suicides
- Chronic illness increases risk for suicide
- Other risk factors include sex, age, psychosocial status

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KETAMINE

- What provides the antidepressant activity?
- Opioid receptor agonist
 - Analgesic
- Activate anterior cingulate cortex
 - Emotion, impulse-control, cognitive function
- Blockade of glutamatergic NMDA receptors and facilitation of AMPA receptors
- IV, IM, intranasal, subcutaneous, oral, sublingual
- Infusion
- Requires hospital setting
- Psychiatric side effects
- Quick onset, relapse