Complications of Depression in the Elderly

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Objectives

- Examine criteria and treatment strategies for treatment-resistant depression in the elderly
- Explore the risks of suicide and management of suicidal ideation among geriatric patients
Treatment Resistant Depression
Definition

- **Variable**
  - Failure to respond to an adequate dosage over adequate duration

- **Stage scenario**
  - **Stage one**
    - Failure of an adequate trial of one class
  - **Stage two**
    - Failure of two distinct classes
  - **Stage three**
    - Failure of three classes, including TCAs
  - **Stage four**
    - Failure of four classes, including MAOIs
  - **Stage five**
    - Failure of ECT
Quantification

- Resolution of symptoms
  - Standardized scales
    - Hamilton Depression Scale, e.g.
  - Full response
    - >50% reduction in symptoms
  - Partial response
    - >25% but <50%
  - No response
    - <25%
Demographics

- Full response
  - 51-73%
    - 50-75% improve on first medication
    - Of these, only half ever achieve full remission
- Partial response 12-15%
- Nonresponse 19-34%
  - 29% fail despite adequate dosage
  - 46% fail despite adequate duration
- Up to 1/3 of elderly depressed patients nonresponsive
  - Range 15-42%
Treatment Resistance

- Only 25% of treatment resistant patients will ever recover
  - Even with optimal treatment decisions

- Errors
  - Misdiagnosis in 30%
  - Underutilization of services
    - Cost, availability of skilled practitioners
  - Don’t explore all treatment options
    - Medications
    - Psychotherapy
    - ECT
Cost of Treatment Resistance

  - Twice as likely to be hospitalized
  - 12% more outpatient visits
  - Over 6 time increase in mean medical costs
  - Actual costs 19 times more than treatment-responsive depressed patients

- Elevated costs related not only to depression but also general medical costs (Russell, 2004)
**TRD in the Elderly**

- **Ebenezer 2009**
  - Depression in 10% of community-dwelling older adults
  - Recovery at one year 57-72%
  - One-third of depressed elders have treatment resistant depression

- **Henrickson**
  - 28% never responded
  - 13% responded, but relapsed

- **Alexopoulus**
  - 26% at 1 year
  - 23% at two years
TRD in the Elderly

- Risks for TRD in late life
  - Increased brain pathology
    - Subcortical disease
    - MCI, dementia
  - Older age
  - Greater chronicity of physical illness
  - Poor social support
Why are people treatment resistant?

- Combination of inherited and environmental factors
  - Emotional stress
  - Situation is not improving
  - Medications alone won’t help
  - Abuse/money/relationships/housing/life changes
  - Psychotherapy required here

- Noncompliance with medications
  - Do not want to take medication
    - 40% of all elderly patients stop antidepressant within 4 weeks
  - Forget to take their medication
  - Self-administration
    - Change dosages on their own
    - Follow your own schedule
Why are people treatment resistant?

- Underlying health problems
- Can cause, worsen or mimic depression
  - Thyroid disease
  - B12 deficiency
  - Pain
  - Anemia
  - Heart disease
  - COPD
  - Cancer
Why are people treatment resistant?

- Iatrogenic reasons
  - Anticonvulsants
  - Barbituates and benzodiazepines
  - Beta blockers and calcium channel blockers
  - Bromocriptine
  - Estrogen
  - Interferon alpha
  - Narcotics
  - Statins
Why are people treatment resistant?

- Another mental health condition
  - Misdiagnosis
    - Bipolar disorder, e.g.
  - Co-morbid conditions
    - Panic disorder, PTSD

- Substance use/dependence
  - Alcohol
  - Narcotics, benzodiazepines
What can I do?

- Do a complete psychosocial history
- Assess treatment compliance
- Address medical issues
- Review medication list
  - Want correct diagnosis
  - Are there co-morbid conditions?
- Treat any substance abuse, dependency
What can I do?

- Medication
  - Stay with the same agent
    - Longer duration
    - Higher dose
  - Switch medications
    - Within a class
    - Between classes
- Augmentation
- Genetic testing for medication
What can I do?

- Nonpharmacologic options
  - Psychotherapy
  - Electroconvulsive therapy (ECT)
  - Transcranial Magnetic Stimulation (TMS)
  - Vagal Nerve Stimulation (VNS)
  - Deep Brain Stimulation (DBS)
Medication Options

- Try the same medication longer
  - 4-8 weeks usual time frame given for adults
  - 8-12 weeks elderly
    - At least
    - Don’t quit too early
    - Some signs improving
      - May need collaborative source
- Increase the dosage
  - Start low, go slow
- Decrease the dosage
  - Adverse events may mimic depression
Switching Medications

- 33% receive no benefit from the first agent
  - Even lower in the elderly

- Class change
  - SSRIs to TCAs, e.g.

- Changes within a class
  - Effective
    - Paroxetine to escitalopram
  - Less likely to benefit
    - Amytriptyline to nortriptyline
Combination Treatment

- Variety of options
  - More efficacy for depression
    - SSRI plus bupropion, e.g.
  - Focus on a resistant symptom
    - SNRI plus mirtazapine

- Target several neurotransmitters at the same time
  - Serotonin
  - Dopamine
  - Norepinephrine
Augmentation

- Antianxiety agents
  - Benzodiazepines
  - Buspirone

- Anticonvulsants
  - Valproic acid
  - Carbemazapine
  - Lamotrigine

- Antipsychotics
  - Atypical agents

- Lithium
Augmentation

- L-methylfolate
  - Helps provide folate for synthesis of neurotransmitters
- Stimulants
  - methylphenidate
- Thyroid hormone
  - T3 (Cytomel)
Genetic Testing

- Cytochrome P450 genotyping
  - Specific genes affect how your body metabolizes antidepressants
    - May help determine which antidepressant is right for you
  - CYP2D6 29 polymorphisms
    - 25% of all drugs; most antidepressants
  - CYP2C19 2 polymorphisms
    - Amitriptyline and imipramine
- Not widely available (Mayo Clinic, e.g.)
Psychotherapy

- Can be effective alone or in combination with medication
  - Long-term
    - Psychodynamic
  - Short-term
    - Cognitive-behavioral and Interpersonal

- Resistant to psychotherapy
  - Psychotherapy alone 39%
  - Combination 28%

- Dropout rate 25-50%
  - Low motivation/dissatisfaction with therapist 46.7%
  - External difficulties 40%
Psychotherapy

Points to remember

- Not all therapists are the same
  - From LMHPs to PhD psychologists
- Lock and key
  - Fit between patient and therapist
- Must have the capacity
  - I hate writing stop orders
- Must have the desire
  - Forced therapy is no therapy
Electroconvulsive Therapy (ECT)

- “Shock therapy”
  - Low pulse electrical stimulation
  - Elicits a seizure

- Response rate 80-90%
  - May require maintenance

- Unknown how this improves depression
  - Find out, win Nobel Prize

- Completely medicalized procedure
  - Anesthesia
    - Twilight sleep with a barbituate
    - Muscle paralysis with succinyl choline
ECT

- **Treatment**
  - 30-60 sec. seizure
  - Seizure threshold
  - 6-12 treatments acutely
  - Three days a week
    - Every week to every month maintenance
- **Geriatrics**
  - Rapid recovery
  - Works well with psychotic depression
ECT

- **Side effects**
  - Memory loss
    - Short-term, related to period of ECT
  - Cardiac complications
    - Arrythmias
    - 1/10,000

- **Contraindications**
  - No absolute
    - Brain tumor
    - Recent heart attack
ECT
Repetitive Transcranial Magnetic Stimulation (rTMS)

- Weak electrical impulses introduced into tissue by changing the magnetic field
  - Large electromagnetic coil
  - Placed near the forehead
  - Ventromedial prefrontal cortex
  - Tapping and clicking

- Painless
  - 1-2 hour initial visit
  - 40 minute follow-up visits
  - 5 times a week for 4-6 weeks
rTMS

- FDA approved since 2008
  - Few places to get treatment
  - Mostly large medical centers

- Still conflicting data about efficacy
  - Some studies indicated that “sham rTMS” worked as well as real rTMS
    - Resistant patients need something to help
  - Less than robust response by psychiatrists and neurologists
rTMS

- Side effects
  - Headaches
  - Scalp discomfort
  - Tingling, spasm of facial muscles
  - Lightheadedness
  - Seizures
  - Mania
  - Deceased hearing
rTMS
rTMS
Vagal Nerve Stimulation (VNS)

- Implanted stimulator
  - Pacemaker-like
  - Wires to left vagus nerve
- Used in epilepsy
  - FDA approved 2005 for TRD
- Device on 30 seconds every 5 minutes
  - Stimulation intensity can be controlled
  - Magnet turns it off
VNS

- Data not robust, conflicting
  - But it help some resistant patients
  - Takes months to improve

- Side effects
  - Vocal changes 67%
  - Cough 45%
  - Obstructive sleep apnea

- Left side
  - Fewer cardiac fibers
  - Doesn’t slow the heart
Deep Brain Stimulation (DBS)

- Implantable device
  - Brain pacemaker
  - FDA-approved movement disorders 2002
    - OCD 2009

- Three parts
  - Implantable pulse generator (IPG)
  - Lead
    - Skull into brain areas
  - Extension
    - Connects lead to IPG
DBS

Placement of the electrodes

- Mainly cingulate gyrus and basal ganglia
- Subgenual cingulate
  - Overactive in TRD
    - 4/6 patients improved (Mayberg, et al., 2008)

Nucleus accumbens

- Reward and pleasure
  - A few patients improved with treatment (Schlaep, Lieb, 2005)
DBS

- Data appears more promising, but side effects concerning (Lakhan, Callaway, 2010)
  - Switch turned on
    - Immediate effect
    - Surgery done with depressed patient awake
  - Remission in some cases

- Side effects
  - Mania and psychosis
  - Panic attacks
  - Suicide
  - Involuntary movements
  - Speech difficulties
DBS
Don’t ask...

- St. John’s Wort
  - Not any better than a sugar pill
  - Drug interactions

- Light therapy
  - Not much evidence aside from seasonal affective disorder (SAD)

- Vitamin D
  - Maybe in SAD
  - Only if deficient

- Pyridoxine HCl (Vitamin B6)
  - Birth control pill-depression

- Tryptophan
  - Happy Thanksgiving
...really

- Phenylalanine
  - Not much data

- B vitamins
  - Especially B12
  - Only in deficiency

- Again, only when deficient
  - Magnesium
  - Iron
  - Vitamin C
  - Potassium
Suicide in the Elderly
National Statistics

- Eleventh leading cause of death in the US
  - More than 33,000/year in 2006
  - 91/day
  - 1 suicide every 16 minutes

- Substance Abuse
  - Alcohol
    - 33% at time of suicide
  - Opiates
    - 1 in 5
National Statistics

- **Sex**
  - Women attempt suicide 2-3 times more often than men
  - Males take their live nearly four times as often

- **Cause of death**
  - 7th for men
  - 16th for women
National Statistics

- **Age**
  - For men highest rate in those over 75
    - 35.7/100,000
  - For women highest rate in those between 45-54
    - 8.4 per 100,000

- **Means**
  - Leading cause for men is firearms
    - 56.0%
  - Leading cause for women is poisoning
    - 40.3%
Demographics

- The elderly have the highest rate of completed suicide in the US
  - 19% of all suicides
  - 13% of the population
- Highest rate of all those men 85 and over
  - 49.8/100,000
    - At least four times the national average for all ages
  - National average is 10.6/100,000
Means

- Firearms 71.1%
- Overdose 11%
- Suffocation/hanging 11%
- Falls 1.6%
- Drowning 1.4%
- Fire 0.4%
Race and Sex

- Race
  - White 15/100,000
  - Asian-American 8/100,000
  - Native-American 5/100,000
  - African-American 4/100,000

- Sex
  - Men complete 85% of the suicides
    - All age average is 79.0% for men
Geography

- **Massachusetts**
  - 5.9/100,000
  - 9.0/100,000 for men

- **Nebraska**
  - 11.1/100,000
  - 23.9/100,000 for men

- **Wyoming**
  - 31.9/100,000
  - 53.0/100,000 for men
Nature of Suicide in the Elderly

- Expressed less intent than in younger patients
  - 2/3 with suicidal thoughts had high intent score
  - 30% MDD elderly had suicidal thoughts
- More planning undertaken
  - Want to assure success
- More determined
  - Smaller ratio of attempts to completed suicides
    - 4:1 in men over 65
    - 200:1 in young women
Nature of Suicide in the Elderly

- Less likely to survive
  - More violent means
    - More likely to use a firearm
    - 15% more than the national average

- More impulsive
  - Alcohol involved in 35% male suicides and 16% female suicides in those over 65
  - Factor in about 30% all age suicides
Need to ask...

- Provider visits prior to suicide
  - 20% seen by their MD within 24 hours of the suicide
  - 41% seen within a week
  - 75% seen within a month

- Mental health visits prior to suicide
  - 11% seen by a mental health provider within a month of the suicide
  - 7% seen within a year
Risk factors in the Elderly

- History of a mental illness
  - 6-9% have major depression
- Previous suicide attempt
  - Indicative of propensity to try again
- Substance use
- Male sex
- Older age
Risk Factors in the Elderly

- Physical illness or decline
  - May be themselves or a spouse
  - Role of caregiver too overwhelming for men
- Social isolation
  - Especially recently widowed men
- Family history
- Access to means
  - Firearms, alcohol, medications
  - Be aware of risk of medications in overdose
Nursing Home

- **New York City (2008)**
  - Elderly suicides average per year
    - 1724 suicides by persons over 60
    - 47 occurred in the nursing home
  - Main risk factor was age of the resident
    - Older the resident more likely to commit suicide
  - Fewer died by GSW than in the community
    - More died from falls
    - 2.5 times the community rate
  - Drop in suicide rates among community-dwelling over 15 years
    - No change in the nursing home
Prevention

- Be aware of risk factors in the individual
  - Which ones?
  - How many?
- Talk about depression and suicide with patients
  - Address stigma, embarrassment issues
- Initiate treatment
  - Medications safe and effective
    - Close follow-up
  - Involuntary treatment
    - Emergency guardianship, BOMH commitment
  - Refer to a mental health provider
Objectives

- Examine the criteria and treatment strategies for treatment-resistant depression in the elderly
- Explore the risk of suicide and management of suicidal ideation in geriatric patients
Questions?