OBJECTIVES

At the conclusion of this activity, participants should be able to:

• Identify the psychological effects of the coronavirus pandemic with regard to older patients.

• Discuss the neuropsychiatric sequelae of COVID-19 in the elderly.

• Improve telepsychiatry services to geriatric patients.
Small observational studies (cohort, case series, case studies).

Systemic reviews.

Large surveys conducted online or by telephone.
COVID-19 IN OLDER PATIENTS

- 90% of deaths in Italy and 80% in US were elderly.

- Elderly have higher risk of death (3X):
  - Co-morbid conditions such as HTN, CVD, DM, COPD.
  - Rationing of care?

  - Grolli, 2020
NEUROLOGICAL SEQUELAE OF COVID-19

- Significant number (1/3) have neurological symptoms:
  - Loss of taste/smell, headache, and delirium most common.
  - Also GB Syndrome, TG neuralgia, seizures, cerebrovascular events, meningitis/encephalitis.

- Neurological symptoms more common in severe cases.

- But not commonly the main cause of death (4.1%).

  - Alonso-Lana, 2020
POTENTIAL CAUSES OF NEUROLOGICAL SEQUELAE

- **Direct viral invasion of brain:**
  - Cytokines may damage BBB
  - Enter via peripheral nervous system
  - Scant evidence

- **Immune reaction/inflammation:**
  - Cytokine storm
  - Hypercoagulation

- **Hypoxic brain damage:**
  - Verified by post mortem studies

- **Long ICU stays:**
  - Ventilation, drug use, organ dysfunction

  - Ryoo, 2020
Post-mortem histopathological analysis found no evidence of direct brain invasion; only hypoxic changes.
  • Ryoo, 2020

Neuroimaging of living COVID-19 patients with neurological symptoms:
  • 34% had lesions.
  • Mostly diffuse subcortical or deep white matter abnormalities.
  • Some had hemorrhages and infarcts as well.
  • Egbert 2020
CASE STUDY: SHARON

- 75 year old married female who was admitted to nursing home 3 years ago with husband, mainly due to his needs. Heavily invested in being a caregiver.

- She had an extensive history of mental illness, including depression and anxiety since childhood.

- Past history of self harm as well sexual and somatic preoccupations.

- Cognitive impairment, bipolar, OCD and borderline all mentioned in records.

- Father was mentally ill, sexually inappropriate and completed suicide.
MOCA on admission was 23/30. But appeared to be functioning highly with no confusion observed. BIMS on admission was 15/15.

Head CT prior to admission unremarkable apart from small vessel disease.

Labs (CMP, CBC, TSH, B12, syphilis) unremarkable.

Initial diagnoses: Generalized anxiety disorder, unspecified bipolar disorder, adjustment disorder, mild neurocognitive disorder.

Deemed to have decisional capacity.
SHARON

- Was very socially active and engaged in various activities.
- Challenging for staff: Demanding of their time and attention.
- Would often fret about husband and his care.
- Considered self an artist.
- Began psychotherapy immediately.
- Often ruminated about past sexual indiscretions.
- Had urges to scratch/injure self with pen or art tools.
- Soon after admission, added diagnosis of unspecified personality disorder with cluster B traits (borderline, histrionic, narcissistic).
At various points, complained dramatically of insomnia, racing thoughts, difficulty concentrating.

Also complained of medication side effects, especially dry mouth.

Initially maintained on quetiapine and lorazepam.

Trials of lurasidone, mirtazapine, oxcarbazepine not well tolerated or ineffective.

Sent to UIHC for second opinion: Borderline PD thought to be primary diagnosis. DBT recommended.

Bipolar diagnosis dropped and persistent depressive disorder added.
NEUROPSYCHIATRIC SEQUELAE IN PAST CORONAVIRUS EPIDEMICS

- SARS-CoV, MERS

- PTSD most common psychiatric disorder, followed by anxiety and depression.
  - Persisted for years in many.

- Long-term cognitive impairment in many who were on ventilators:
  - Attention, memory, verbal fluency, processing speed, executive function.
  - 78% one year out, and 47% two years out.

  - Alonso-Lana, 2020
20% of people >60 have a neuropsychiatric disorder (dementia, major depression and anxiety most prevalent).

Chronic stress and depression is associated with activation of the HPA axis and in turn with neuroinflammation and inflammatory processes.

Prolonged stress can increase corticosteroids causing increased susceptibility to viral infection.

- Grolli, 2020
ACUTE NEUROPSYCHIATRIC SEQUELAE OF COVID-19

- Anxiety, insomnia, depression, PTSD, cognitive impairment all reported.
- Pre-existing neuropsychiatric condition increased risk.
- Overall in patients of all ages neuropsychiatric symptoms in 22.5% of patients.
- 31.2% of patients >60 had altered mental status.
- 69% of ICU admissions were agitated and 2/3 of them were cognitively impaired. Many required restraints and sedatives.

- Alonso-Lana 2020
ACUTE NEUROPSYCHIATRIC SEQUELAE OF COVID-19

- Systemic review of hospitalized patients.
- Mean ages in studies ranged from 61-69.
- 43.0-66.8% had cognitive impairment.
- Delirium was most common term. Also confusion, encephalopathy, encephalitis, altered mental status, and psychosis reported.
- Cytokine storm implicated.

· Ainefeesi, 2021
NEW-ONSET PSYCHOSIS DURING PANDEMIC

- Associated with delirium or corticosteroid use.
  - Usually resolved after recovery.

- Some cases also associated with quarantine stress:
  - Paranoia, fear, excessive/conflicting information.

  - Fontes, 2020
VERY LITTLE IS KNOWN ABOUT THE LONG TERM NEUROPSYCHIATRIC EFFECTS OF COVID-19 ON THE ELDERLY.
Some recovered patients still have impaired memory, attention and processing speed.

Anxiety and depression common after recovery.

1/3 of patients discharged from ICU had a dysexecutive syndrome with impaired attention, orientation and psychomotor function.

42% of hospitalized had delirium and then had reduced cognitive scores 4 weeks after discharge.

- Alonso-Lana, 2020
In one systemic review, the median age of survivors was 54.4 years old and 79.9% were hospitalized.

54% of them had symptoms beyond 6 months.

The most common persistent problems were pulmonary sequelae, neurologic syndromes, mental health disorders, functional mobility limitations and constitutional symptoms.

- 37.5% with fatigue/weakness.
- 29.6% with generalized anxiety
- 23.8% difficulty concentrating

Groff, 2021
LONG TERM NEUROPSYCHIATRIC SEQUELAE OF COVID-19

- 740 patients followed for several months, including inpatient, ED, and outpatient cases.
- Assessing complaints of “brain fog.”
- Mean age 49.
- Neuropsychological testing performed. Deficits:
  - 24% memory encoding.
  - 23% memory recall.
  - 20% category fluency.
  - 18% processing speed.
  - 16% executive function.
  - 15% Phonemic fluency.

  - Becker, 2021
COVID-19 IN ELDERS WITH COGNITIVE IMPAIRMENT

- Confusion, disorientation, refusal of care, reduced appetite may be initial symptom.

- Abulia, alogia, rigidity, agitation may occur.

- Subtle behavioral changes may be initial symptoms and present even before fever or cough.

  • Alonso-Lana, 2020
COVID-19 IN ELDERS WITH COGNITIVE IMPAIRMENT

- Dementia increases risk of infection, severity of infection and mortality rate.

- Apolipoprotein E may increase risk of infection and death.
  - Known to be associated with dementia and inflammatory response.

- Delirium is common:
  - Hypoactive delirium more common than hyperactive.
  - Polypharmacy and catheter use increase risk.

  - Manca, 2020
COVID-19 AND ALZHEIMER’S

- Many COVID-19 patients had elevated biomarkers similar to patients who have Alzheimer’s disease (especially those with neurologic sequelae).
- Suggestive of inflammation and neuronal injury.
- Toxic metabolic encephalopathy (due to sepsis, hypoxia or multiple) was most common neurologic event.
- These patients had more cognitive and functional impairment.
- Could COVID-19 increase risk for dementia or worsen pre-existing dementia?

- Frontera, 2021
Social isolation (objective) versus loneliness (subjective):

- Both can increase mortality (immune/inflammation).
- Both can increase risk of dementia.
- Isolation tends to worsen anxiety, depression, sleep, physical activity.
- Can be lonely even if not isolated (perception).
- Before pandemic, about ¼ of elderly reported loneliness.

- Roy, 2020
Older adults tend to have lower stress reactivity and better emotional regulation.

“Successful aging” improves coping abilities and optimism.

Negative views of aging tend to correlate with increased loneliness.

Close meaningful relationships are more important than frequent interactions.

- Vahia, 2020
Many experienced anxiety, depression, sleep disruption or reduced physical activity.
  • Excessive information could cause emotional instability or paranoia.
  • If a close relative was affected, this could increase depression.
  • Apprehension about safety/security could increase anxiety/panic.
    • Grolli, 2020

Worse for elders who felt older than actual age or had pre-existing neuropsychiatric conditions.

May be dependent on number of people in household and size of social network.
  • Manca, 2020
SURVEY OF PSYCHOLOGICAL SYMPTOMS DURING PANDEMIC

- JAMA reported a survey of 933 community dwelling subjects >65 who were cognitively intact:
  - Trauma/stress 9.2%
  - Anxiety 6.2%
  - Depression 5.8%

- Younger age groups had much higher rates:
  - 45-64 2X, 25-44 5X, 18-24 8X.

  - Vahia, 2020
Several studies in multiple countries confirmed that older adults were experiencing fewer pandemic related psychological symptoms (anxiety, depression, stress) than younger adults.

Thought to have more “wisdom”:
- Compassion, empathy, emotional regulation, self reflection, decisiveness, social advising, spirituality, acceptance of uncertainty, tolerance of diverse perspectives, social connectedness.

- Vahia, 2020
Multiple studies confirm increased rates of behavioral and psychological symptoms in those with subjective cognitive impairment, mild cognitive impairment and dementia including:

- Apathy, agitation, aggression, irritability, depression, sleep disturbance.

Cognitive decline, language problems and aberrant motor activity also reported.

- Alonso, 2020
Less access to memory clinics, home care, outpatient care, senior centers, family contact, etc.

- Resulting in less medical care, socialization and exercise.

- Manca, 2020
STRATEGIES FOR MENTAL WELLNESS DURING QUARANTINE

- Encourage family/friends to connect any way possible:
  - Video, phone call, Email, writing, packages, etc.
- Reduce exposure to “news”.
- Regular physical activity.
- Stay on a schedule (esp. sleeping and eating).
- Online classes and groups.
- Spiritual activities.
- BE CREATIVE!
  - Example: Program to pair student volunteers with nursing home residents to visit by phone.
Pre-pandemic, dementia caregivers reported anxiety (43.6%) and depressive (34%) symptoms.  
  - Altieri, 2020

Stress symptoms in 2/3 of caregivers during pandemic.  
  - Many caregivers working from home and schooling children.  
    - Iodice, 2020

Increased rates of caregiver anxiety associated with:  
  - Female, pre-existing psychiatric problems, contact with COVID-19, or lack access to information.  
    - Li, 2021
Dependent adult abuse:

- One study reported increase of 83.6% during quarantine.
  - 1/5 seniors reported caregiver abuse.

- Increased risk: Financial strain, close proximity, lacking a sense of community.

  - Chang, 2021
PROLONGED GRIEF DISORDER

➢ New Diagnosis for ICD-11 and DSM-5.

➢ Persistent and pervasive yearning, longing, pre-occupying thoughts and memories of the deceased lasting at least 6 months.

➢ Complicated by the pandemic:
  • Dying alone.
  • Rapid unexpected death.
  • Bereavement rituals (e.g., funerals).
  • Less social support.
  • Changes in hospice or palliative care.
  • Guilt related to circumstances.
Approximately two years after admission, COVID-19 restrictions are implemented at her facility.

She struggles with the changes and initially violates infection control rules.

Complains bitterly of being “trapped” and “imprisoned.”

She and her husband both test positive for SARS-Cov2 and develop symptoms of COVID-19. They are both moved to the COVID unit for several days.

She seems to enjoy the extra attention received in the COVID unit and begs to stay there.

She and husband both have mild cases of COVID and move back to home unit after a short stay on COVID unit.
After returning to home unit, behavior changes are noted. Becomes obsessive and compulsive about cleaning vaginal and anal areas. Uses large quantities of cleaning supplies and worries constantly about running out. Fixated on losing weight (due to fibromyalgia). Obsessive about bowels making multiple requests for laxatives and for nurses to “dig me out”. Obsessive about urinary incontinence and pull-ups. Insists that clothes are wet and puts them in dryer compulsively. OCD added to list of diagnoses.
- Watches the same TV show obsessively and claims that actors have changed.

- Pries bridgework out of mouth with a tweezer causing bleeding and injury. Wanted all remaining teeth pulled out “so I could have a full set in the morning.”

- Scrapes lips with fingernails causing bleeding. Was trying to achieve “the perfect lips.”

- Never appears delirious.

- Trials of risperidone and ziprasidone not tolerated or beneficial.

- Unspecified psychotic disorder (brief vs bipolar) added.
- SLUMS test 17/30
- Decisional capacity doubted.
- Moved to memory care unit.
- Becomes frantic and very depressed (mainly due to limited access to hygienic supplies).

Neuropsychological assessment performed at UIHC:
- Impaired cognitive processing speed, learning, memory, executive function and visual/spatial.
- Language and attention intact.
- Major neurocognitive disorder likely due to vascular disease, medication and mental illness. Cannot rule out COVID.
- Lacks decisional capacity for complex decisions.

- Upset about testing results (doctor said she was “stupid” and “very bad person”).
- Donepezil started.
SHARON TODAY

- Quetiapine, lorazepam, sertraline, donepezil.
- Mood stable, non-psychotic, BIMS 15/15.
- Continues to challenge staff.
- Back to baseline behaviorally?
- Will her neuropsychological testing improve?
- Will she return to an open unit?
### SHARON’S TIMELINE

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Admission 2 years before COVID Dx</th>
<th>2 months before COVID</th>
<th>1 month after COVID</th>
<th>4 months after COVID</th>
<th>7 months after COVID</th>
<th>10 months after COVID</th>
<th>15 months after COVID</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIMS</td>
<td>15/15</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>9</td>
<td>14</td>
<td>15/15</td>
</tr>
<tr>
<td>PHQ-9</td>
<td>8/27</td>
<td>16</td>
<td>13</td>
<td>18</td>
<td>1</td>
<td>6</td>
<td>6/27</td>
</tr>
</tbody>
</table>

- **Isolation**
- **Self injury**
- **Neuropsych**
- **COVID**
- **Transfer**
Has been utilized for many years by the VA, rural communities, prisons and in many LTC facilities.

COVID-19 brought an unprecedented expansion.

75% of nursing home residents benefitted from psychology services via telehealth during pandemic.

- Renzi, 2020
TELEPSYCHIATRY BARRIERS FOR THE ELDERLY

- Sensory deficits
- Speech/language impairment
- Cognitive impairment
- Access to and familiarity with technology
- Preference to see providers in person
- Irritates some dementia patients
- Limitations of LTC staff
TELEPSYCHIATRY TIPS

- Ask family members to assist if at home.
- Be attentive to lighting.
- Turn off other devices and shut doors.
- Set up on stationary surface.
- Headphones if appropriate.
- Long-term care facilities:
  - Staff education.
  - Designate staff to assist (repeat questions, visual scan).
  - Ask facility to upgrade WiFi/equipment.
BENEFITS OF TELEPSYCHIATRY IN LTC

- Safe for patients and providers.
- More efficient and less travel time.
- Can utilize volume controls and headphones.
- LTC facility can capture reimbursement for providing assistance.
- Easy to include learners and family members.
## Electronic Cognitive Assessment Instruments

<table>
<thead>
<tr>
<th>Video Only:</th>
<th>MOCA telehealth</th>
<th>MMSE</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Telephone or Video:</td>
<td>MOCA telephone</td>
<td>Brief Test of Adult Cognition</td>
<td>Cognitive Telephone Screening Instrument</td>
<td>Telephone Interview for Cognitive Status</td>
</tr>
</tbody>
</table>

Hantke, 2020
ETHICAL DILEMMAS

- Ageism
- Rationing of care (acute and maintenance)
- “Being Mortal” by Atul Gawande.
SUMMARY

- Significant numbers of COVID-19 patients have neurological sequelae, although these symptoms may be mild and rarely cause death.
- Both social isolation and COVID-19 can exacerbate pre-existing neuropsychiatric disorders.
- Social isolation often causes increased rates of anxiety, depression, and stress/trauma symptoms, but higher functioning older adults may be less affected than younger adults are.
- Cognitively impaired patients infected with SARS-CoV2 often initially present with subtle behavior changes.
- Very little is known about the long-term neuropsychiatric effects of COVID-19 on the elderly.
- Lifestyle, technology and behavioral interventions are important to offset the adverse effects of quarantine.


