



Psychiatric Mimics

The Interface of Psychiatry and Medicine

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Conflict of Interest Declaration: Nothing to Disclose

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- ▶ **Title of Presentation: Medical Mimics: The Interface of Medicine and Psychiatry**

I have no financial or personal relationship related to this presentation to disclose.



Objectives

- ▶ Review of delirium
- ▶ Somatoform disorders
- ▶ Review of psychiatric manifestations in medical illnesses
- ▶ Discuss the principles of ruling out organic etiology
- ▶ Assess how to work with patients and families with medical conditions that have no reasonable explanation

▶ Certain content used with permission from Dr. Sockalingam and Dr. Garcia, U of T Psychiatry



▶ Delirium

- ▶ Very common and important to rule out
 - ▶ 10-30% of medically ill patients who are hospitalized exhibit delirium³
 - ▶ 30% of ICU patients exhibit delirium³
 - ▶ 40-50% of hip surgery patients exhibit delirium³
 - ▶ Up to 90% of postcardiotomy patients exhibit delirium in some studies³
 - ▶ 80% of terminally ill patients develop delirium³



➤ Delirium

- Can mimic almost any psychiatric disorder
- Caused by
 - Generalized medical condition
 - Substance induced
 - Multiple causes
 - NOS
 - DIMSE: drugs, infectious, metabolic, structural, environmental



➤ Delirium

➤ Postulated Etiology

- Oxidative stresses in vulnerable brain structures due to etiology(infection, substances)
- Neuroinflammation secondary to increased microglia activity
- Results in neurotransmitter dysfunction
 - Decreased: acetylcholine, GABA
 - Increased: dopamine, glutamate

➤ Manifestations

- Disorientation
- Fluctuations in LOC
- Agitation, psychosis

Table 1. Diagnostic Criteria for Delirium.

Source of Criteria

DSM-5*

The presence of delirium requires all the criteria to be met:

Disturbance in attention and awareness

Disturbance develops acutely and tends to fluctuate in severity

At least one additional disturbance in cognition

Disturbances are not better explained by a preexisting dementia

Disturbances do not occur in the context of a severely reduced level of arousal or coma

Evidence of an underlying organic cause or causes

Confusion Assessment Method (CAM)†

The presence of delirium requires features 1 and 2 and either 3 or 4:

Acute change in mental status with a fluctuating course (feature 1)

Inattention (feature 2)

Disorganized thinking (feature 3)

Altered level of consciousness (feature 4)

* The criteria are adapted from the *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-5).⁵

† The criteria are adapted from Inouye et al.⁶



➤ Delirium

➤ Management

- Treat the underlying cause
- Non-pharmacological management
- Pharmacological management with hyperactive presentations
 - Antipsychotic treatment
- Rationale for antipsychotic treatment of delirium
 - Increased dopamine in delirium, results in positive symptoms and agitation
 - Dopamine required for glutamate excitotoxic effects in the striatum
 - Significant increase in dopamine can lead to acetylcholine deficiency
 - Hence reduction in dopamine leads to improvement in hyperactive sx of delirium
- Which antipsychotics to use
 - Haloperidol
 - Quetiapine
 - risperidone

Delirium

Table 3. Evaluation and Management of Delirium.

Step and Key Issues	Proposed Evaluation and Treatment
Evaluate and treat common modifiable contributors to delirium*	
Drugs	Consider the etiologic role of newly initiated drugs, increased doses, interactions, over-the-counter drugs, and alcohol; consider especially the role of high-risk drugs: lower the dose, discontinue the drug, or substitute a less psychoactive medication
Electrolyte disturbances	Assess for and treat, especially dehydration, sodium imbalance, and thyroid abnormalities
Lack of drugs	Assess possible symptoms of withdrawal from long-term use of sedatives, including alcohol and sleeping pills; assess for and treat poorly controlled pain (lack of analgesia): use local measures and scheduled treatment regimens that minimize the use of opioids (avoid meperidine)
Infection	Evaluate and treat, especially urinary tract, respiratory tract, and soft-tissue infections
Reduced sensory input	Address issues involving vision (e.g., encourage use of eyeglasses) and hearing (e.g., encourage use of hearing aids or a portable amplifier)
Intracranial disorders	Consider such disorders (e.g., infection, hemorrhage, stroke, or tumor) if there are new focal neurologic findings or a suggestive history or if diagnostic evaluation for causes outside the central nervous system is unrevealing
Urinary and fecal disorders	Assess for and treat urinary retention (so-called cystocerebral syndrome) and fecal impaction
Myocardial and pulmonary disorders	Assess for and treat myocardial infarction, arrhythmia, heart failure, hypotension, severe anemia, exacerbation of chronic obstructive pulmonary disease, hypoxia, and hypercarbia
Prevent or manage complications	
Urinary incontinence	Implement a scheduled toileting program
Immobility and falls	Avoid physical restraints; mobilize the patient with assistance; use physical therapy
Pressure ulcers	Mobilize the patient; reposition an immobilized patient frequently and monitor pressure points
Sleep disturbance	Implement a nonpharmacologic sleep-hygiene program, including a nighttime sleep protocol; avoid sedatives; minimize unnecessary awakenings (e.g., for measuring vital signs)
Feeding disorders	Monitor dietary intake; provide feeding assistance if needed, aspiration precautions, and supplementation as necessary
Maintain patient comfort and safety	
Behavioral interventions	Teach hospital staff de-escalation techniques for patients who have hyperactive or agitated delirium; encourage family visitation
Pharmacologic interventions	Use low doses of high-potency antipsychotic agents only if necessary
Restore function	
Hospital environment	Reduce clutter and noise; provide adequate lighting; encourage family to bring in familiar objects from home
Cognitive reconditioning	Staff should reorient patient to time, place, and person at least three times daily
Ability to perform activities of daily living	Use physical and occupational therapy; as delirium clears, match performance to ability
Family education, support, and participation	Provide education about delirium, its causes and reversibility, the best ways to interact with affected patients, and the role of the family in restoring function
Discharge planning and education	Provide increased support for activities of daily living as needed at discharge; teach family members to follow mental status as a barometer of recovery

* The first letters of these eight items form the mnemonic DELIRIUM.

Delirium

Table 5. Pharmacologic Therapy of Agitated Delirium.*

Agent	Drug Class	Dosing†	Routes	Degree of Sedation	Risk of EPS	Adverse Effects	Comments
Haloperidol	Typical anti-psychotic	Initial: 0.25–0.5 mg Maximum: 3 mg	Oral, IM, or IV	Low	High	Risk of EPS increases if daily dose exceeds 3 mg	Longest track record in delirium; several large trials are ongoing
Risperidone	Atypical anti-psychotic	Initial: 0.25–0.5 mg Maximum: 3 mg	Oral or IM	Low	High	Slightly less risk of EPS than with haloperidol at low doses	Small trials; considered to be very similar to haloperidol
Olanzapine	Atypical anti-psychotic	Initial: 2.5–5 mg Maximum: 20 mg	Oral, sublingual, or IM	Moderate	Moderate	More sedating than haloperidol	Small trials; oral route is less effective than other routes for management of acute symptoms
Quetiapine	Atypical anti-psychotic	Initial: 12.5–25 mg Maximum: 50 mg	Oral	High	Low	Much more sedating than haloperidol; risk of hypotension	Small trials; can be used, with caution, in patients who have parkinsonism
Ziprasidone	Atypical anti-psychotic	Initial: 5–10 mg Maximum: 40 mg	Oral or IM	Moderate	Moderate	More sedating than haloperidol; risk of cardiac arrhythmia, heart failure, and agranulocytosis	Owing to risks, used primarily in ICU; large trial is ongoing
Lorazepam	Benzodiazepine	Initial: 0.25–0.5 mg Maximum: 2 mg	Oral, IM, or IV	Very high	None	More paradoxical excitation and respiratory depression than with haloperidol	Second-line agent; use in sedative and alcohol withdrawal or if patient has a history of the neuroleptic malignant syndrome

* Use of all these drugs for delirium is off-label in the United States. Atypical antipsychotic agents have been tested primarily in small noninferiority trials with haloperidol and recently in small placebo-controlled trials in the intensive care unit (ICU). The Food and Drug Administration (FDA) requires a “black box” warning for all atypical antipsychotics because of increased risks of cerebrovascular events (e.g., stroke) and death among patients with dementia. Typical antipsychotic agents have an FDA “black box” warning because of an increased risk of death among patients with dementia. EPS denotes extrapyramidal symptoms, IM intramuscular, and IV intravenous.

† The doses recommended in this table are for older adults. “Initial” represents the initial dose for an acutely agitated older patient; the dose may need to be repeated. “Maximum” represents the maximum recommended cumulative daily dose — that is, the sum of all as-needed and scheduled doses over a period of 24 hours. Somewhat higher doses may be used in younger patients if the side-effect profile is acceptable.



Delirium

Antipsychotics a few key points

Quetiapine

- SE: more sedation, increased anticholinergic SE
- Lower risk of EPS
- Dose range: 6.25mg-100mg daily

Risperidone

- 0.25-1mg po daily

Haloperidol

- SE: less sedation, mild impact on seizure threshold and respiratory depression compared to other antipsychotics
- Low anticholinergic activity
- Increased risk of EPS compared to atypicals
- Doses for elderly 0.25 (mild) to 2mg (severe) daily vs young/healthy 0.5 (mild) to 5mg(severe) daily



Delirium

Antipsychotics a few key points

Evidence?


RCT's

- Olanzapine and risperidone= haloperidol (oral)

- Quetiapine > placebo (Q group recovered 83% faster)

Retrospective review

- Quetiapine= haloperidol (oral)



➤ Somatic Symptom Disorders

➤ Somatization


➤ Who is at risk for the disorder?

➤ Teenagers who somatize, increased risk for SD in adulthood if:

- They are female
- Have comorbid psychiatric illness
- Family history of psychiatric illness
- More adverse life events

➤ What is it?

- Manifestation of physical symptoms in response to emotional stress
- It is often a “normal” process reaction ex Royal College Exam ☺
- Becomes a clinical condition when the patient is not able to identify the process and seeks medical attention for the physical symptoms that become unexplained



➤ Somatic Symptom Disorders

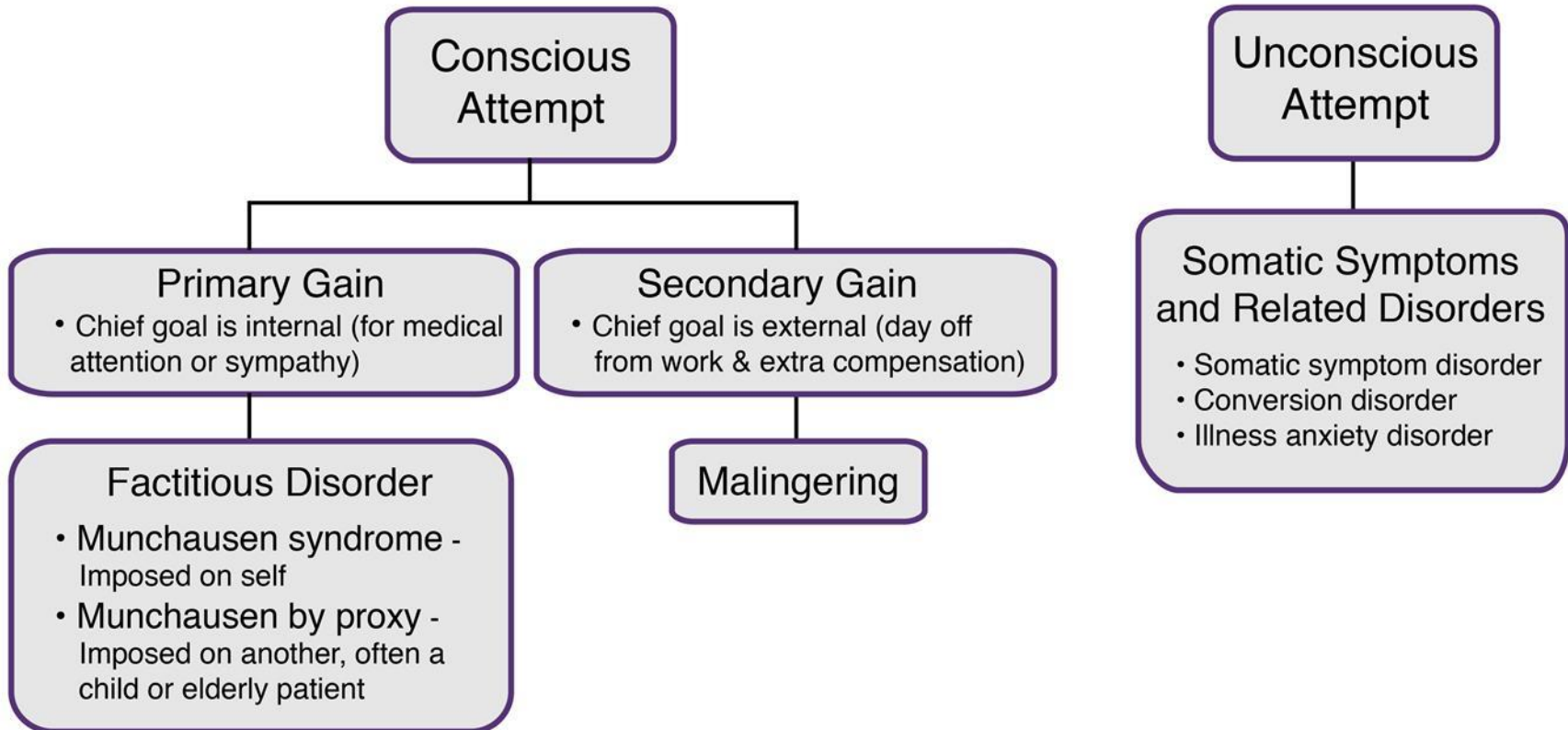
- Who is at risk for the disorder
 - Teenagers who somatize, increased risk for SD in adulthood if:
 - They are female
 - Have comorbid psychiatric illness
 - Family history of psychiatric illness
 - More adverse life events
 - Trauma survivors have an increased risk if:
 - Difficulty with affect regulation/emotional distress
 - Early life exposure to sexual/physical trauma
 - Recurrent exposure to trauma vs single event
 - Other risk factors
 - Alexithymia
 - Attachment disorders
 - Chronic medical illness

► Somatic Symptom Disorders

► DSM IV vs V

Disorders in DSM V	Disorders in DSM IV
Psychological factors affecting GMC	Pain Disorder(s)
Somatic Symptom Disorder <ul style="list-style-type: none">- Predominant pain- Persistent- Sev: mild,mod, sev	<ul style="list-style-type: none">-Somatization disorder-Hypochondriasis with somatic sx-Pain disorder with psychological fact predominant
Unspecified somatic symptom or related disorder Specific somatic symptom or related disorder	Undifferentiated somatoform disorder
Illness anxiety disorder	Hypochondriasis without somatic sx
Functional neurological disorder	Conversion disorder
Factitious disorder	Factitious disorder was NOT a SD

Differential Diagnosis for Suspicious Symptoms



Somatic Symptom Disorder

- ▶ A 27-year-old woman presents to her primary care physician due to headache, chest pain, and food intolerance. These symptoms have been very distressing for her and reports that these symptoms have been present for approximately 8 months. She previously had seen a headache specialist, gastroenterologist, and obtained a number of electrocardiograms in the emergency department. Their respective thorough work-up was negative. On physical exam, the patient appears healthy and is otherwise unremarkable.
- ▶ DSM V criteria
 - ▶ ≥ 1 somatic symptom(s) which are distressing to the patient or leads to a significant amount of disruption in the patient's life
 - ▶ the patient experiences excessive thoughts, feelings, and behaviors in relation to their somatic symptoms or their health concerns
 - ▶ these manifest as ≥ 1 of the following
 - ▶ thoughts about the seriousness of their symptoms are disproportionate and persistent
 - ▶ anxiety levels about their health or symptoms are persistently elevated
 - ▶ concerns for their symptoms or health take excessive time and energy
 - ▶ the somatic symptom must be persistent for ≥ 6 months although these symptoms don't have to always be present



Somatic Symptom Disorder

- Treatment
 - have a single physician as the designated primary caretaker
 - schedule monthly visits and psychotherapy to prevent psychiatric sequelae of chronic invalidism and potential substance abuse
 - avoid unnecessary diagnostic testing/medications unless indicated demedicalize
- Psychoeducation
 - “you are not in danger from your physical symptoms”
 - Skills: mindfulness, relaxation, distraction
- Psychotherapy
 - RTCs support CBT in health anxiety with somatic sx and chronic pain related SSD
- Physician-patient relationship is key
 - “your suffering is real and I am interested in helping”

Functional Neurological Symptom Disorder (conversion disorder)

- A 23-year-old woman presents to her physician's office with paralysis of the left arm and paresthesia of the left leg. She reports that her left arm does "not feel part of me." On physical examination, the patient's mood is incongruent with the presence of her symptoms. She is unable to raise the left arm; however, she was able to obtain an object from her purse.
- DSM V criteria
 - ≥ 1 symptom(s) of
 - altered sensory function or
 - altered voluntary motor function
 - clinical findings are not consistent with recognized neurological or medical conditions
 - the patient's symptoms are not better explained by
 - another medical condition or
 - medical disorder
 - the patient's symptoms causes
 - significant distress or
 - impairment in functioning or
 - a need for medical evaluation
 - Specifiers
 - With weakness/paralysis
 - With abnormal movements
 - With swallowing symptoms
 - With attacks or seizures
 - With anesthesia or sensory loss
 - With special sensory symptoms
 - With mixed symptoms




- ▶ Treatment

- ▶ patient education and developing a therapeutic alliance (first-line)
- ▶ Physician reassurance: REFRAMING, normalization, and reassurance
- ▶ Gradual program of physiotherapy and expected return to function
 - ▶ Collaborative care is KEY
- ▶ cognitive behavioral therapy (CBT)
 - ▶ Exploring triggers as symptom resolution occurs and new coping styles are practiced (BUT therapeutic relationship is needed for this)

Illness Anxiety Disorder (Hypochondriasis)

- ▶ A 21-year-old man presents to his physician's office with concerns of having heart disease. He says that he has been concerned about having a heart attack for the past 7 months. He constantly checks his pulse and reads about symptoms associated with heart disease on a daily basis. He reports that his worry is causing him a great deal of stress and concern. Medical history is unremarkable. Family history is significant for a myocardial infarction in his father, who is currently living without significant morbidity. Physical examination is normal.
- ▶ DSM V criteria
 - ▶ patient's are worried about having or developing a serious illness and
 - ▶ this preoccupation is present for at least 6 months and
 - ▶ is not better explained by another mental disorder (e.g., obsessive-compulsive disorder and somatic symptom disorder)
 - ▶ patient's can have an excessive or disproportionate preoccupation of developing a medical condition if
 - ▶ another medical condition is present or
 - ▶ if they are at high risk (e.g., strong family history of heart disease)
 - ▶ somatic symptoms are typically not present
 - ▶ an associated high level of anxiety about their health
 - ▶ the patient performs excessive health-related behaviors (e.g., checking their body for the presence of an illness) or
 - ▶ the patient may develop maladaptive avoidance patterns (e.g., avoiding doctor appointments)



- ▶ Treatment

- ▶ the goal is to improve coping skills while never dismissing their fears
- ▶ Same modalities as anxiety disorders seem to work best even in patients who lack insight and symptoms approach delusional intensity
 - ▶ CBT: 4 RCT's show good short and longer term efficacy
 - ▶ Exposure therapy: 1 RCT modest benefit
 - ▶ SSRI's- no RCTs but seem to work well

Factitious Disorder Imposed on Self

- ▶ A 22-year-old woman is brought to the emergency department after fainting and subsequently having a seizure in the parking lot of the hospital. The patient was identified to be a nursing student and a syringe was found on her person. Point of care testing for glucose shows hypoglycemia. Laboratory testing is obtained and is significant for an insulin to c-peptide ratio that is > 1 . (Factitious disorder imposed on self)
 - ▶ DSM V criteria factitious disorder imposed on self (Munchausen syndrome)
 - ▶ the patient falsifies physical or psychological symptoms or induces injury or disease to themselves
 - ▶ The individual presents himself or herself to others as ill, impaired or injured
 - ▶ the patient's deceptive behavior occurs in the absence of external rewards
 - ▶ this disorder is not better explained by another mental disorder (e.g., delusional disorder)



➤ Treatment

- No evidence supporting a particular intervention
- Main area of foci for non-psychiatrist is gentle confrontation and negotiation/agreement of diagnosis
 - Careful documentation and communication is key
 - For psychiatrist main area of focus is to engage the patient in treatment long enough to challenge illness behaviour and to support better coping mechanisms
 - You may want to give the patient like an out/excuse that they can admit to , e.g. looks like when you don't come into hospital, it is very lonely at home....



Differential Diagnosis

Anxiety

Drugs

Endocrine

- Adrenal disorders
- Glucose dysregulation
- Parathyroid dysfunction
- Thyroid dysfunction
- Gonadal hormone dysfunction

Respiratory

- Asthma
- Pneumothorax
- PE

Cardiovascular

- MI
- Dysrhythmias
- CHF
- Anemia and hypovolemia
- Mitral valve prolapse

GI

- Colitis
- PUD
- Esophageal dysmotility

Metabolic

- Acidosis
- Electrolyte abnormalities
- Wilson's
- Pernicious anemia
- Porphyria

Neurologic

- Brain tumors
- CVA
- Encephalopathies
- Epilepsy (esp. temporal lobe)
- Myasthenia gravis
- Pain
- Closed head injury

Degenerative diseases

- Dementias
- Huntington's

Autoimmune disorders

- MS

Infections

- AIDS
- Pneumonia
- TB
- Mono

Depression

- Drugs
- Endocrine
 - Adrenal disorders
 - Thyroid disorders
 - Parathyroid disorders
 - Gonadal Hormone dysfunction
- Metabolic
 - Nutritional deficiencies
- Neurological
 - CVA
 - Epilepsy
 - NPH
 - Traumatic Brain injury
- Degenerative Diseases
 - Dementias
 - Parkinson's
 - Huntington's
- Autoimmune disorders
 - MS
 - SLE
- Infectious
 - Limbic Encephalitis
 - CJD
 - Neurosyphilis
 - Lyme disease
- Neoplastic
 - Brain tumor
 - Pancreatic cancer
 - Other cancer
- Collagen-Vascular diseases
- Sleep Disorders
 - Obstructive sleep apnea
 - Insomnia

Bipolar Disorder (Mania)

- Drugs
- Endocrine
 - Cushing's Syndrome
 - Thyrotoxicosis
- Metabolic
 - Hemodialysis
 - Hepatic encephalopathy
 - Uremia
 - B₁₂ deficiency
- CNS disorders
 - CVA
 - Closed head injuries
 - Epilepsy
 - CNS tumors
- Degenerative diseases
 - Huntington's
 - MS
 - Dementias
- Infections
 - Sydenham's chorea
 - Neurosyphilis
 - CJD
- Auto immune
 - SLE
- Other
 - Chorea gravidarum

Psychosis

- ▶ Drugs and toxins
- ▶ Endocrinopathies
 - ▶ Adrenal disorders
 - ▶ Thyroid dysfunction
 - ▶ Parathyroid dysfunction
 - ▶ Pituitary dysfunction
- ▶ Metabolic disorders
 - ▶ Porphyria
 - ▶ Wilson's
 - ▶ Amino acid metabolism disorders
 - ▶ Etc.
- ▶ Nutritional and vitamin deficiencies
 - ▶ Vitamin A, D, & B₁₂
 - ▶ Magnesium, Zinc, Niacin
- ▶ CNS disorders
 - ▶ CVA
 - ▶ Epilepsy
 - ▶ Closed head injuries
 - ▶ Hydrocephalus
- ▶ Degenerative Disorders
 - ▶ Dementia
 - ▶ Huntington's
 - ▶ Parkinson's
 - ▶ Friedreich's ataxia
- ▶ Autoimmune disorders
 - ▶ MS
 - ▶ SLE
 - ▶ Paraneoplastic syndrome
- ▶ Infections
 - ▶ Viral encephalitis
 - ▶ Neurosyphilis
 - ▶ Lyme disease
 - ▶ HIV
 - ▶ CNS Parasites
 - ▶ Tuberculosis
 - ▶ Sarcoidosis
 - ▶ Prion diseases
- ▶ Space occupying lesions
 - ▶ CVM
 - ▶ Tuberos sclerosis
- ▶ Neoplastic
- ▶ Chromosomal abnormalities
 - ▶ Klienfelter's
 - ▶ FragileX
 - ▶ XXX syndrome




Specific Diseases



Specific Diseases



- ▶ Most commonly talked about diseases in Psychiatric literature
 - ▶ However, uncommon presentations of common diseases are more common than common presentations of uncommon diseases
- 

Head Trauma

- ▶ Incidence 200:100,000⁶
- ▶ Most common at 15-25 years of age³
- ▶ Male : Female ratio 3:1³
- ▶ Neuropsychiatric sequelae resulting from head trauma³
 - ▶ 10% of patients with mild head trauma
 - ▶ 50% of patients with moderate head trauma

Head Trauma

- ▶ Two major clusters of symptoms are seen³
 - ▶ Cognitive impairment
 - ▶ Decreased speed of processing, decreased attention, trouble with memory, learning and problem solving.
 - ▶ Behavioral sequelae
 - ▶ Depression, impulsivity, aggression, personality change
 - ▶ Behavioral Sequelae often exacerbated by alcohol use

Epilepsy

- ▶ A seizure is a transient disturbance of cerebral function caused by a spontaneous, excessive discharge of neurons³
- ▶ Incidence 50:100,000¹⁰
- ▶ Prevalence 500-1,000:100,000¹⁰

Epilepsy

- ▶ 30-50% of epileptics have psychiatric difficulties sometime in their life³
- ▶ 60% of epileptics have nonconvulsive seizures, most commonly partial seizures⁴
- ▶ Of those with partial seizures 40% do not show classic focal findings on EEG⁴

Epilepsy

➤ Anxiety

- More closely associated with partial seizures⁴
 - May be difficult to differentiate from panic attacks⁴

➤ Mood Disorder Symptoms

- Depression occurs in >50% of epileptics, but only in 30% of matched controls⁴
- Suicide rate in people with epilepsy is 5X that of the general population. ⁴
 - Up to 25X higher with temporal lobe epilepsy. ⁴

Epilepsy

▶ Psychosis

- ▶ 10% of patients with complex partial epilepsy have psychotic symptoms³
- ▶ Up to 6-12X more common than in the general public⁴

Brain Tumors

- Incidence: 16.5:100,000⁵
- Prevalence 131:100,000¹¹
- Mental symptoms are experienced by 50% of patients with brain tumors³
- Of patients with mental symptoms, 80% have lesions in frontal or limbic regions³
- Almost any psychiatric symptom can be seen

Immune disorders

▶ Systemic Lupus Erythematosus

- ▶ Autoimmune inflammatory disorder that involves multiple organ systems
- ▶ “The great Mimicker”
- ▶ Prevalence: 40-150:100,000⁶
- ▶ Female : Male ratio 10:1⁶
- ▶ African American women have 2.5-3X incidence of Caucasian women⁶

Immune disorders

- ▶ Systemic Lupus Erythematosus
 - ▶ Approximately 50% of patients show neuropsychiatric manifestations³
 - ▶ Depression, insomnia, emotional lability, nervousness, confusion
 - ▶ Treatment with corticosteroids causes further risk of neuropsychiatric manifestations
 - ▶ Must have a high index of suspicion

Immune disorders

➤ Systemic Lupus Erythematosus

➤ Signs

- Malar (butterfly) rash
- Discoid rash
- Photosensitivity
- Oral ulcers
- Renal disease
- Positive ANA

Immune Disorders

Multiple Sclerosis

- Episodic, inflammatory, multifocal, demyelinating disease of unknown etiology associated with white matter lesions^{3,4}
- Prevalence 50:100,000³
- Physical symptoms are varied but of a neurologic origin and often focal.

Immune Disorders

➤ Multiple Sclerosis

- 95% of MS patients experience depressed mood, agitation, anxiety, irritability, apathy, euphoria, disinhibition, hallucinations, or delusions⁴
- Depressive symptoms occur in over 75% of patients⁴
 - Associated with an increased rate of suicide
- 25% of patients exhibit euphoric mood that is not, but may be confused with hypomania³
 - 10% of patients will have sustained euphoria.
- >50% of patients will have mild cognitive defects and 20-30% have severe defects³

Immune Disorders

- ▶ Multiple sclerosis

- ▶ Signs

- ▶ Clonus

- ▶ Clumsiness

- ▶ Dysarthria

- ▶ Paralysis/paresis

- ▶ Anesthesia/hyperesthesia

Endocrine Disorders

▶ Hyperthyroidism

- ▶ Several causes, end result is excess T_3 and T_4
- ▶ Incidence⁶
 - ▶ 100:100,000 female
 - ▶ 33:100,000 male
- ▶ Physical complaints include easy fatigability, generalized weakness, insomnia, weight loss, tremulousness, palpitations, sweating

Endocrine Disorders

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Endocrine Disorders

- ▶ Hyperthyroidism
 - ▶ Psychiatric complaints
 - ▶ Classically presents as anxiety
 - ▶ Serious psychiatric symptoms include manic excitement, delusions, hallucinations³
 - ▶ Elderly patients may present with apathy, psychomotor retardation and depression⁴

Endocrine Disorders

▶ Hyperthyroidism

▶ Signs

- ▶ Goiter
- ▶ Exophthalmos
- ▶ Moist skin/excessive sweating

Endocrine Disorders

▶ Hypothyroidism

- ▶ Lack of thyroid hormone
- ▶ Prevalence 500-1000:100,000
 - ▶ Female > male 5:1-10:1
 - ▶ >65 years old 6-10% of women and 2-3% of men
- ▶ Physical complaints include: Weakness, fatigue, cold intolerance, constipation, weight gain, hearing impairment, dry skin

Endocrine Disorders

▶ Hypothyroidism

▶ Psychiatric manifestations include:

- ▶ Depression is most commonly seen
- ▶ Untreated severe hypothyroidism leads to “Myxedema madness” which can lead to paranoid, depression, hypomania, and hallucinations
- ▶ 10% of patients have residual neuropsychiatric symptoms after hormone replacement³

Endocrine Disorders

➤ Hypothyroidism

➤ Signs

- Dry, coarse skin
- Facial puffiness
- Thin, dry hair
- Delayed relaxation of DTR's
- Myxedema
- Goiter

Endocrine Disorders

Hyperparathyroidism

- ▶ Excess parathyroid hormone causes hypercalcemia
- ▶ Prevalence 250:100,000⁶
- ▶ Incidence 42:100,000⁶
 - ▶ Male > 60 = 100:100,000
 - ▶ Female > 60 = 300-400:100,000
- ▶ Physical complaints include: “painful bones, renal stones, abdominal groans, and psychic moans”

Endocrine Disorders

- ▶ Hyperparathyroidism
 - ▶ Psychiatric manifestations include
 - ▶ 50-60% of patients have delirium, personality changes or apathy
 - ▶ 25% of patients have cognitive impairments

Endocrine Disorders

➤ Hyperparathyroidism

➤ Signs

- Nephrolithiasis
- GI distress
- Osteoporosis
- HTN
- Short QT interval
- Pancreatitis
- Pancreatic calcifications

Endocrine Disorders

▶ Adrenocortical excess

- ▶ Caused by endogenous production (Cushing's) or exogenous administration
- ▶ Cushing's is rare, corticosteroid administration is common
- ▶ Psychiatric symptoms include
 - ▶ Agitated depression and often suicide in Cushing's
 - ▶ Mania and Psychosis often seen with exogenous steroids
 - ▶ Steroid withdrawal often leads to severe depression

Endocrine Disorders

- ▶ Adrenocortical insufficiency
 - ▶ Incidence 0.6:100,000
 - ▶ Prevalence 4:100,000
 - ▶ Only occasionally causes psychiatric symptoms including irritability, depression, and rarely psychosis
- ▶ Hypoparathyroidism
 - ▶ Deficiency of parathyroid hormone leads to hypocalcaemia
 - ▶ Rare
 - ▶ Can cause delirium and personality changes

Nutritional Disorders

▶ Thiamine deficiency

▶ **Leads to Beriberi and Wernicke-Korsakoff syndrome which is classically seen in alcoholics**

▶ **Prevalence 800-2,800:100,000**

▶ 0.8 to 2.8 percent of the general population have Wernicke lesions at autopsy

▶ Lesions seen in 12.5% of alcohol abusers and 29-59% of those with alcohol related deaths

▶ **Psychiatric symptoms include apathy, depression, irritability, nervousness, and poor concentration. Severe memory disorders can develop with prolonged deficiencies**

Nutritional Disorders

- ▶ Cobalamin (B12) deficiency
 - ▶ Caused by lack of dietary intake, malabsorption (worsened by antacids) or pernicious anemia
 - ▶ Incidence 15,000:100,000
 - ▶ Up to 15% of adults >65⁹
 - ▶ Psychiatric symptoms include Apathy depression, irritability, moodiness
 - ▶ Can lead to an encephalopathy called “megaloblastic madness” which is characterized by delirium, delusions, hallucinations, dementia, and paranoia³

Nutritional Disorders

- ▶ Cobalamin (B12) deficiency

- ▶ Signs

- ▶ Neuropathy

- ▶ Megaloblastic anemia

- ▶ Glositis

- ▶ Hepato-splenomegaly

- ▶ Niacin Deficiency

- ▶ Rare

- ▶ Causes apathy, irritability, insomnia, depression, and delirium as well as dermatitis, peripheral neuropathies and diarrhea

Metabolic disorders

- **Common metabolic disorders do not typically present initially with neuropsychiatric complaints, but can later lead to problems. These include**
 - Hepatic encephalopathy
 - Uremic encephalopathy
 - Hypoglycemic encephalopathy
 - Diabetic Ketoacidosis and Hyperosmolar hyperglycemic state
- **Rare metabolic disorders can initially present with only neuropsychiatric complaints. Most commonly tested is Acute intermittent porphyria (AIP)**

Metabolic disorders

- ▶ Acute intermittent porphyria (AIP)
 - ▶ Disorder of heme biosynthesis. Leads to excess porphyrins
 - ▶ Incidence 1:10,000-100,000
 - ▶ However, some studies show that 0.2-0.5% of chronic psychiatric patients may have undiagnosed porphyrias³
 - ▶ Autosomal dominant.
 - ▶ Affects Women > men
 - ▶ Classic triad of symptoms

Metabolic disorders

- ▶ Acute intermittent porphyria (AIP)
 - ▶ Classic triad of symptoms
 - ▶ Acute, colicky abdominal pain
 - ▶ Motor polyneuropathy
 - ▶ Psychosis
 - ▶ Other psychiatric symptoms include anxiety, insomnia, mood lability, and depression³
 - ▶ Barbiturates precipitate attacks and are absolutely contraindicated even in patients with a family history of disease³

Metabolic Disorders

➤ Wilson's Disease

- Autosomal recessive defect in copper excretion
- Prevalence of 3:100,000⁴
- Patients complain of tremor, RUQ pain, spasticity, dysphagia, chorea

Metabolic Disorders

▶ Wilson's Disease

- ▶ 10-15% of patient present with psychiatric symptoms. Patients who present differently may still have psychiatric symptoms. These include
 - ▶ Most commonly patients have bizarre, possibly frontal behavior. But also may have depressive, schizophreniform, and bipolar symptoms.

Metabolic Disorders

Wilson's Disease

Signs

- Half of patients present with liver manifestations including hepatitis, cirrhosis, or fulminant hepatitis.
- Kayser-Fleischer rings
- Tremor
- Spasticity
- Rigidity
- Chorea
- dysarthria

Infectious diseases

▶ Lyme disease

- ▶ Infection caused by the spirochete *Borrelia burgdorferi*. Transmitted by *Ixodid* ticks
- ▶ Incidence is extremely variable depending on location
 - ▶ Overall incidence is 8.2:100,000⁶
- ▶ Physical complaints include “bulls eye” rash of erythema migrans (60-80%), fever, headache, myalgas, joint pain, neuropathies

Infectious diseases

▶ Lyme disease

- ▶ Psychiatric symptoms of Lyme disease include memory lapses, difficulty concentrating, irritability and depression³
 - ▶ A chronic encephalopathy may develop (Neuroborreliosis) causing a wide range of neuropsychiatric symptoms and even mimic MS and cause seizures⁴
- ▶ Signs
 - ▶ Erythema migrans at sight of tick bite

Infectious diseases

- ▶ Herpes simplex encephalitis
 - ▶ Incidence 0.2:100,000⁷
 - ▶ Most common focal encephalitis³
 - ▶ Affects frontal and temporal lobes
 - ▶ Common Symptoms include anosmia, olfactory and gustatory hallucinations, personality changes and bizarre or psychotic behaviors³

Infectious Disease

- ▶ Other, less common infections
 - ▶ Chronic Meningitis
 - ▶ Rabies
 - ▶ Neurosyphilis
 - ▶ Subacute Sclerosing Panencephalitis (SSPE)

Infectious Disease

- ▶ Other, less common infections
 - ▶ Prion Disease
 - ▶ CJD and vCJD
 - ▶ Prevalence: 0.1:100,000¹²
 - ▶ KURU
 - ▶ Gerstmann-straussler-scheinker disease
 - ▶ Fatal familial insomnia

References

- 1. Massachusetts General Hospital Handbook of General Hospital Psychiatry 5th edition by Stern et. Al. 2004. Elsevier
- 2. Psychiatric Presentations of Medical Illness, An Introduction for Non-Medical Mental Health Professionals. By Ronald J Diamond M.D. University of Wisconsin Department of Psychiatry 6001 Research Park Blvd Madison, Wisconsin 53719. Found at: <http://www.alternativementalhealth.com/articles/diamond.htm>
- 3. Synopsis of Psychiatry 10th edition by Kaplan & Sadock. 2007. Lippincott Williams & Wilkins
- 4. Massachusetts General Hospital Psychiatry Update and Board Preparation second edition by Stern & Herman. 2004. McGraw-Hill
- 5. American Brain Tumor Association. Found at <http://www.abta.org/siteFiles/SitePages/4CE78576D87BD194A363ACE796099B03.pdf>
- 6. Epocrates Dx version 1.50, based on 5-minute clinical consult by Frank J. Domino, MD
- 7. emedicine article found at <http://emedicine.medscape.com/article/1165183-overview>
- 8. Uptodate online
- 9. American Family Physician March 1, 2003. online at <http://www.aafp.org/afp/20030301/979.html>
- 10. Article found online at http://www.epilepsynse.org.uk/FileStorage/Professionalsarticles/main_content/Chapter1Sander.pdf
- 11. Prevalence estimates for primary brain tumors in the United States by behavior and major histology groups by Davis et. Al. Neuro Oncol 2001 3(3):152-158; DOI:10.1215/15228517-3-3-152 found online at <http://neuro-oncology.dukejournals.org/cgi/content/abstract/3/3/152>
- 12. online article at <http://www.neurologychannel.com/cjd/index.shtml>