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INVESTIGATIONS

COMMON MISTAKES

- Incomplete grouping of investigations eg
  - Ca + alb
  - Liver panel
  - ECG + lipid + glucose + vitals + BMI
  - TSH + vit B12
- Not differentiating between 1st vs 2nd tier investigations (ie ordering elaborate tests with little indication) eg
  - None recreational drug testing vs UDS vs UDS + EtOH
  - CBC + TSH (common and simple tests)
  - Chem panel (+ U/A) vs 24 hr Cr clearance (if hx renal disease), PO4 + Mg
  - Neuroimaging, EEG, CSF analysis
  - STI testing
  - Beta hCG (if for women of childbearing age)
  - CXR
- Failing to read instructions (eg select the single most appropriate answer, select up to 8), ie no going above or necessarily max #

ROUTINE INITIAL INVESTIGATIONS

- Psychosis = UDS, CBC, chem panel, Ca, alb, liver panel, ECG, lipid panel, A1C or fasting glucose, BMI, TSH, vit B12
- Mania similar to psychosis except add U/A + no vit B12 needed
- Depression = CBC, TSH
- Anxiety = no regular routine investigation but rather based on clinical suspicion
- Cognitive impairment = CBC, chem panel, Ca, alb, lipid panel, A1C or fasting glucose, TSH, vit B12
- Indications for neuroimaging
  - Atypical presentation eg
    - Later age of onset for psychosis
    - < 60 yo or rapid decline (< 2 mo) for cognitive impairment)
  - Suspicion of intracranial pathology eg
    - Focal neuro deficits, unexplained seizure-like activity
    - Recent significant TBI, PHx carcinoma, PHx bleeding disorder / on anticoagulants
    - New severe unremitting headache, severe nausea/vomiting
    - Suspicion of autoimmune encephalitis

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MANAGEMENT

COMMON MISTAKES

- Wrong diagnosis eg
    - Primary vs secondary mental disorders
    - ADHD
    - Borderline personality disorder
- Forgetting triage/safety/legal + biopsychosocial model
- Failing to read instructions (eg select possible options applicable for treatment)
    - Getting overwhelmed with ++ options
- Failing to identify indications for admission (eg psychosis) vs discharge
    - Failing to identify safety measures (eg high suicide/agitation risk, driving)
- Lack of familiarity with first line treatments vs 2nd/3rd line treatments eg
    - Giving psych meds when not indicated eg
        - Substance-induced mental disorders
        - Most substance use disorders
    - Forgetting to d/c offending substances/medications
    - Not knowing drug names, classes, or MOA
    - Lack of familiarity with certain indications of medications eg
        - Clozapine
        - First generation antipsychotics
        - Mood stabilizers
        - Benzodiazepines
    - Forgetting indications for adjunctive medications eg
        - Adjunctive antipsychotics for depression
        - Adjunctive benzodiazepines
    - Differentiating between 1st and 2nd/3rd line step eg
        - Clozapine
        - Types of antidepressants
        - Compliance, then med dose, then switch/add med
        - NG tube feedings for eating disorders
    - Unnecessary psychosocial interventions as first line (eg acute psychosis/mania)

GENERAL APPROACH TO INITIAL MANAGEMENT

- Triage/safety/legal
    - Do I admit vs discharge?
    - Is there any safety issues I need to address?
    - Is there any legal issues I need to address?
- Bio
    - Are there any offending biological causes I should discontinue?
    - Are medications +/- other biological therapies indicated?
        - If fail 1st line med = check compliance → optimize dose → do I have the right diagnosis? → figure if I need to add or switch meds
- Psycho

    - Psychoeducation
    - Is psychotherapy indicated at this time?
- Social
    - Any social stressors I need to address?
    - Do I need to optimize social supports?

SPECIFIC MANAGEMENT

- Triage/safety/legal
    - Admissions typically required if
        - High suicide risk (clear plan, high intent, past suicide attempt (#1 risk factor))
        - High homicidal risk (clear target/plan, high intent, aggression history (#1 risk factor))
            - Tx of acute agitation = psychosocial interventions first before medications (1st line = typical antipsychotics and/or benzodiazepines)
        - Acute psychosis
        - Acute mania
        - Severe primary depressive/anxiety and related disorders
        - Eating disorders that fail outpatient treatment or become medically unstable
    - Safety issues (suicide, aggression, abuse, driving, fire hazards, etc)
    - +/- capacity assessment (esp for dementia)
- Bio
    - Remove offending substances/medications/medical disorders
        - No medications for mental disorders due to substances/medications/medical disorders
    - +/- psychiatric medications
        - Catatonia = benzo
        - Primary psychotic disorders 1st line = atypical antipsychotics
            - Treatment-refractory schizophrenia (failed 2+ meds) = clozapine
        - Bipolar disorder (all phases) 1st line = atypical antipsychotics and/or mood stabilizers
            - Target serum level for Li = 0.8-1.2 mEq/L (for acute hypo/mania and MDE) vs 0.6-1 mEq/L (maintenance phase)
            - Avoid valproic acid and carbamezpine in pregnancy
        - MDD 1st line = SSRI, SNRI, bupropion, or mirtazapine
            - +/- ECT if psychotic, severely SI, medical instability, catatonia
            - +/- light therapy if seasonal pattern
        - Anxiety and related disorders 1st line = SSRI (or SNRI for non-OCD disorders) +/- short-term scheduled benzodiazepines for severe anxiety
            - +/- Prazocin for nightmares secondary to PTSD
            - 2nd line gold standard treatment for OCD = clomipramine
        - ADHD 1st line = long-acting psychostimulant
        - Eating disorders = meds overall have little evidence
        - Major neurocognitive disorders = depends on type of dementia

- Alzheimer's = acetylcholinesterase inhibitors and/or memantine (NMDA antagonist)
- Vascular = treat cardiovascular risk factors
- Lewy body dementia, Parkinson's disease dementia = acetylcholinesterase inhibitors
- Frontotemporal dementia = meds have little role
- Alcohol related dementia = stop EtOH and give thiamine supplementation

▪ Certain substance use disorders = only as adjunct for severe cases

- Tobacco use disorder 1st line = nicotine replacement therapy, bupropion, or varenicline
- Alcohol use disorder FDA approved options = acamprosate, naltrexone, disulfiram
  - Benzodiazepine (and thiamine) for alcohol withdrawal
- Opioid use disorder = buprenorphine + naloxone (aka Suboxone), naltrexone, methadone
  - Naloxone for opioid overdose

- Psycho
  - All = psychoeducation
  - Little role for psychotherapy for acute psychosis and mania
  - Depression 1st line psychotherapy = CBT (cognitive behavioral therapy) or interpersonal therapy (IPT)
  - Anxiety and related disorders gold standard psychotherapy = CBT
    - PTSD = trauma-focused psychotherapy, prolonged exposure, and/or EMDR (eye movement desensitization and reprocessing)
    - OCD = ERP (exposure and response prevention)
  - CBT/organizational skills for ADHD
  - Memory aids for cognitive impairment
  - Predominately psychosocial interventions for substance use disorders, oppositional defiant disorder / conduct disorder, eating disorders, personality disorders, and adjustment disorders
    - Gold standard for borderline personality disorder = dialectical behavioral therapy (DBT)
- Social
  - Decrease psychosocial stressors (eg involving social worker for housing, finances, etc)
  - Increasing social supports

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PSYCHOPHARMACOLOGY

CLASSES OF MEDICATIONS

- Antipsychotics
  - First generation antipsychotics (D2 receptor antagonist) = haloperidol
  - Second generation antipsychotics (D2 and 5HT2 receptor antagonists) = -dones (risperidone, paliperidone, lurasidone) and -pines (olanzapine, quetiapine, clozapine)
    - Gold standard for treatment-resistant schizophrenia = clozapine
  - Third generation antipsychotics (D2 receptor agonist + 5HT2 receptor antagonist) = aripiprazole
- Mood stabilizers
  - Lithium
  - Anticonvulsants = divalproex, carbamazepine, lamotrigine
- Antidepressants
  - Selective serotonin reuptake inhibitors (block presynaptic serotonin reuptake channel) = sertraline, es/citalopram, -xetine (fluoxetine, paroxetine, fluvoxamine)
  - Serotonin and norepinephrine reuptake inhibitor (block presynaptic serotonin and norepinephrine reuptake channels) = duloxetine and venlafaxine
  - Tricyclic antidepressants ("dirty SNRI") = -tryptiline (nortriptyline, amitriptyline), -pramine (clomipramine, imipramine)
    - Gold standard 2nd line treatment for OCD = clomipramine
  - Monoamine oxidase inhibitors (MAOI; block monoamine oxidase enzyme) = moclobemide, phenelzine
  - Noradrenaline and dopamine reuptake inhibitors = bupropion
  - Alpha 2 antagonist or NaSSA (noradrenergic and specific serotonergic antidepressant) = mirtazapine
- Benzodiazepines = -zepam (lorazepam, diazepam, clonazepam)
- ADHD medications
  - Long acting vs short acting psychostimulants (methylphenidate, dextroamphetamines, lisdexamfetamine)
  - Non-psychostimulants
    - Atomoxetine (selective norepinephrine reuptake inhibitor)
    - Alpha 2 agonists (clonidine, guanfacine)
- Substance use disorder pharmacological adjuncts
  - Opioid agonist = methadone
  - Partial opioid agonist = buprenorphine
  - Opioid receptor antagonist = naltrexone, naloxone
  - Inhibits acetaldehyde dehydrogenase = disulfiram
  - Modulates GABA/NMDA receptor activity = acamprosate
  - Nicotinic receptor agonist = varenicline

SIDE EFFECTS

- Antipsychotics
  - Esp 1st generation = EPS, hyperprolactinemia, worsening cognitive SE

    - Metabolic SE (esp 2nd generation)
    - Anticholinergic SE, sedation, orthostatic hypotension
    - Neuroleptic malignant syndrome, QTc prolongation, geriatrics with dementia black box warning
        - Clozapine = agranulocytosis, myocarditis/cardiomyopathy, seizures, ileus
- Mood stabilizers
    - Lithium
        - Hypothyroidism, hypercalcemia, polydipsia/polyuria, weight gain, tremor, sedation
        - Lithium toxicity, kidney toxicity, Ebstein's anomaly
    - Antiepileptic drugs
        - Sedation, weight gain, GI upset
        - Blood dyscrasia, hepatic failure, pancreatitis, neural tube defects, Steven-Johnson syndrome / toxic epidermal necrolysis
- Antidepressants
    - SSRI/SNRIs generally well-tolerated (GI upset, headache, insomnia/fatigue, sexual dysfunction, weight gain)
        - Mirtazapine = sedating, weight gain
        - Bupropion = activating (not for eating disorders/seizures)
    - Flip into mania vs behavioral activation, blackbox warning < 24 yo (increased suicidal ideation/behavior), serotonin syndrome
        - SSRI = hyponatremia, bleeding risk with NSAIDs
        - TCA = anticholinergic, sedation, weight gain, orthostatic hypotension, arrhythmogenic (potentially lethal)
        - MAOI = hypertensive crisis
- Benzodiazepines = sedation, cognitive impairment, respiratory depression, addictions
- Psychostimulants = HTN, tachycardia, headache, insomnia, decreased appetite, decreased height, sudden cardiac death, flip into mania/psychosis, unmask tics, addictions

SIDE EFFECT MANAGEMENT

- EPS = decrease dose → switch to less offensive med → +/- pharmacological adjunct
    - Acute dystonia, Parkinsonism = anticholinergics
    - Akathisia = beta blockers
    - Tardive dyskinesia/dystonia = benzo > botox > valbenazine/tetrabenazine (vesicular monoamine transporter 2 inhibitor)
- NMS = d/c antipsychotic, ICU admission, supportive care (IV fluids, aggressive cooling), +/- benzo/dantrolene/bromocriptine/amantadine
- Serotonin syndrome = d/c serotonergic agent, supportive care (IV fluids), +/- benzos / cyproheptadine
- Lithium toxicity = suspend lithium, IV fluids, supportive care, +/- hemodialysis