Judging confusion & delirium...a myriad of causes

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The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) lists five key features that characterize delirium:

- ●Disturbance in attention (reduced ability to direct, focus, sustain, and shift attention) and awareness.
- ●The disturbance develops over a short period of time (usually hours to days), represents a change from baseline, and tends to fluctuate during the course of the day.
- ●An additional disturbance in cognition (memory deficit, disorientation, language, visuospatial ability, or perception).
- ●The disturbances are not better explained by another preexisting, evolving, or established neurocognitive disorder, and do not occur in the context of a severely reduced level of arousal, such as coma.
- ●There is evidence from the history, physical examination, or laboratory findings that the disturbance is caused by a medical condition, substance intoxication or withdrawal, or medication side effect.

Additional features that may accompany delirium and confusion include the following:

- ●Psychomotor behavioral disturbances such as hypoactivity, hyperactivity with increased sympathetic activity, and impairment in sleep duration and architecture.
- ●Variable emotional disturbances, including fear, depression, euphoria, or perplexity.

1. Prescription medications
    a. Opioids (e.g. morphine, norco, vicodin, etc)
    b. Sedative-hypnotics (e.g. ambien, restoril, sleep aid meds)
    c. Antipsychotics (e.g. abilify, zyprexa, etc)
    d. Lithium
    e. Skeletal muscle relaxers (e.g. soma, robaxin, etc)
    f. Polypharmacy
2. Non-prescription medications
    a. Antihistamines
3. Drugs of abuse
    a. Ethanol
    b. Heroin
    c. Hallucinogens (e.g. LSD, PCP, etc)
    d. Non-medicinal use of prescription medications
4. Withdrawal states
    a. Ethanol
    b. Benzodiazepines
5. Medication side-effects

    a. Elevated ammonia from valproic acid
    b. Confusion from quinolones
    c. Serotonin syndrome
6. Poisons
    a. Atypical alcohols
        i. Ethylene glycol
        ii. Methanol
    b. Inhaled toxins
        i. Carbon monoxide
        ii. Cyanide
        iii. Hydrogen sulfide
    c. Plant-derived
        i. Jimson weed
        ii. Salvia
7. Infections
    a. Sepsis
    b. Systemic infections-fever associated delirium
8. Metabolic derangements
    a. Electrolyte disturbances (elevated or depressed)
        i. Sodium
        ii. Calcium
        iii. Magnesium
        iv. Phosphate
    b. Endocrine disturbance (elevated or depressed)
        i. Thyroid
        ii. Parathyroid
        iii. Pancreas
        iv. Pituitary
        v. Adrenal
    c. Hypercarbia
    d. Hyperglycemia and hypoglycemia
    e. Hyperosmolar and hypoosmolar states
        i. Typically happens with type 2 diabetics
    f. Hypoxemia
    g. Inborn errors of metabolism
        i. Porphyria
            1. Over accumulation of porphyrin which leads to delirium and other psychiatric issues.
        ii. Wilson disease
            1. Rare. Causes copper to accumulate in liver.
    h. Nutritional
        i. Wernicke encephalopathy
        ii. Vitamin b12 deficiency
        iii. Folate and niacin deficiency

9. Brain disorders
    a. CNS infection
        i. Encephalitis
            1. Inflammation of the active tissues of the brain caused by infection.
        ii. Meningitis
            1. Inflammation of the meninges (membranes surrounding the brain)
        iii. Brain or epidural abscess
            1. Infection that occurs in the brain and can result in delirium.
    b. Epileptic seizure
        i. Abnormal and excessive electrical brain activity can cause the brain to undergo changes in cognition which include delirium.
    c. Hypertensive encephalopathy
        i. Brain dysfunction due to significantly high blood pressure. Delirium/confusion may occur with sudden onset. Kidney failure is a cause of this.
    d. Psychiatric disorder
        i. Depression, schizophrenia, etc all can lead to intermittent bouts of delirium.
10. Systemic organ failure
    a. Cardiac failure
        i. When the body can no longer compensate adequately for the failing heart, blood circulation to the brain will start to drop. Without enough blood, the brain does not function well, resulting in lightheadedness and/or mental confusion.
    b. Hematologic
        i. Thrombocytosis
            1. Too many platelets. Symptoms include headache, dizziness and weakness.
        ii. Hypereosinophilia
            1. High amount of specific white blood cells. If persistent then can lead to organ failure. Delirium can occur along with coma.
        iii. Leukemic blast cell crisis
            1. A phase in leukemia in which tiredness, fever and enlarged spleen occur when more than 30% of the cells in the blood or bone marrow are blast cells (immature blood cells).
        iv. Polycythemia
            1. Increased red blood cells. Makes blood thicker and more prone to blood clots. If blood clot occurs in the brain then delirium can ensue.
    c. Liver failure (acute and chronic)
        i. Not as common as kidney failure. Jaundice (yellowing of skin) is a good indication of liver failure. Similar to kidney failure, it occurs as a result of the liver being unable to perform its primary function which is to detoxify substances that have been consumed.
    d. Pulmonary disease, including hypercarbia and hypoxemia
        i. Hypercarbia is excess carbon dioxide in the blood. Commonly related to COPD. Hypoventilation is leading cause.

ii. Hypoxemia is low blood oxygen and its leading causes are heart conditions/defects and lung conditions such as asthma, emphysema and bronchitis.

e. Kidney failure (acute and chronic)
    i. Common occurrence. Underlying factor is electrolyte imbalances. Can occur after dialysis or if dialysis is skipped.

11. Physical disorders
    a. Burns
    b. Electrocution
    c. Hyperthermia
        i. More common than hypothermia. Happens when abnormally high body temp caused by a failure of heat-regulating mechanisms of the body. Exacerbating factors are being dehydrated, inefficient sweat glands, heart, lung and kidney disease.
    d. Hypothermia
        i. Happens as a result of exposure to temperatures colder than the body. Lethargy, confusion and shivering can happen with mild hypothermia (32-35°C)
    e. Trauma with
        i. systemic inflammatory response syndrome
            1. Caused by bacterial infection, trauma or pancreatitis. Symptoms include fast heart rate, low blood pressure, low or high body temp and low or high white blood cell count.
        ii. Head injury
            1. Common in motor vehicle accidents. Can be mild to moderate and still induce delirium/confusion.
        iii. Fat embolism
            1. Common in alcoholics and characterized by fever, encephalopathy, respiratory failure and skin petechiae