Pathophysiology Concept Map

1. Disease / condition overview

A. Definition:

Major Depressive Disorder is a psychiatric condition characterized by persistent feelings of sadness, hopelessness, and loss of interest or pleasure in activities, significantly impacting daily functioning.

B. Risk factors:

Family history of depression, chronic medical conditions, trauma or stress, certain medications, female gender, poverty, social isolation

2. Etiology

A. Primary cause(s):

- Neurochemical imbalances in the brain
- Genetic predisposition
- Environmental factors

B. Contributing factors:

- Chronic stress
- Childhood adversity
- Hormonal changes
- Circadian rhythm disruptions

3. Pathophysiological mechanisms

- Dysregulation of neurotransmitters (serotonin, norepinephrine, dopamine)
- Hypothalamic-pituitary-adrenal (HPA) axis dysfunction
- Neuroplasticity and neurogenesis impairment
- Inflammatory processes affecting neural circuits
- Alterations in brain structure and function (e.g., reduced hippocampal volume)

4. Signs and symptoms

- Persistent sad, anxious, or "empty" mood
- Feelings of hopelessness or pessimism
- Irritability
- Loss of interest or pleasure in hobbies and activities
- Decreased energy or fatigue
- Difficulty concentrating, remembering, or making decisions
- Sleep disturbances (insomnia or hypersomnia)
- Appetite and weight changes

Major depressive disorder (MDD)

5. Diagnostic criteria/tests

- Clinical interview using DSM-5 criteria
- Standardized depression rating scales
- Medical evaluation to rule out physical causes
- Psychological assessment
- Neuroimaging studies (in some cases)

6. Complications

- Increased risk of suicide and self-harm
- Substance abuse
- Social isolation and relationship difficulties
- Decreased work or academic performance
- Comorbid anxiety disorders

7. Treatment approaches

- Psychotherapy (e.g., Cognitive behavioral therapy, interpersonal therapy)
- Antidepressant medications (e.g., SSRIs, SNRIs)
- Combination of psychotherapy and medication
- Lifestyle modifications (exercise, sleep hygiene, stress reduction)
- Social support interventions

8. Patient education

- Importance of medication adherence and potential side effects
- Recognition of early warning signs and symptoms
- Development of coping strategies and stress management techniques
- Importance of maintaining social connections
- Benefits of regular physical activity and proper sleep hygiene