ATAXIA AND GAIT DISTURBANCES

SYMPTOMS OF A VARIETY OF DISEASE PROCESSES AND ARE NOT OF THEMSELVES A DIAGNOSIS

ATAXIA IS A FAILURE TO PRODUCE SMOOTH INTENTIONAL MOVEMENTS

GAIT DISORDERS INCLUDE ATAXIC GAIT AS WELL AS A VAIRETY OF OTHER CONDITIONS

THE PRESENTATION MAY BE POORLY ARTICULATED → WEAKNESS, DIZZINESS, STROKE, FALLING

PATHOPHYSIOLOGY:

- Result from many conditions that affect different elements of the CNS and PNS
    - Cerebellar lesions ARE NOT THE MOST COMMON CAUSE OF THESE COMPLAINTS
- ATAXIA divided into MOTOR AND SENSORY:
    - MOTOR ATAXIA:
        - Aka cerebellar ataxia
        - Sensory receptors and afferent pathways are intact but integration of the proprioceptive information is faulty
        - Involvement of lateral cerebellum may involve IPSILATERAL LIMB
        - Midline portion involvement of cerebellum → AXIAL MUSCLE COORDINATION
    - SENSORY ATAXIA:
        - Occurs with failure in transmission of proprioception to the CNS → disorders of the peripheral nerves, spinal cord or cerebellar input tracts

CLINICAL FEATURES:

- ENTIRE SYMPTOM COMPLEX SHOULD BE INTERROGATED, nature of onset and time course guide pace of investigations
- General physical exam should include orthostatic vital signs → hypovolaemia, diabetic autonomic neuropathy → in elderly, simple volume replacement may be adequate for improvement in unsteadiness
- GAIT ASSESSMENT OBVIOUSLY CRUCIAL, and a normal examination should not be assumed without observing ambulation → tandem gait, heel-toe
- CEREBELLAR ASSESSMENT:
    - Smooth voluntary movements and rapidly alternating movements
    - DYSSYNERGIA → break down of movement to component parts
    - DYSMETRIA → inaccurate fine movements
    - DYSDIADOCHOKINESIA → clumsy rapid movements
        - Above represent problems with lateral cerebellum

    - FINGER-NOSE TEST → performing with eyes closed assesses proprioception in the upper limb and can help differentiate between dorsal column issue and cerebellar problem
    - STEWART-HOLMES REBOUND SIGN → sudden release of flexed forearm → individual fails to check the movement
    - ROMBERG → primarily a test of sensation → if ataxia worsens with eyes closed, suggests sensory ataxia with problem of proprioceptive input (posterior column or vestibular dysfunction) or peripheral neuropathy
        - Can occur in normal individuals
- SENSORY ASSESSMENT:
    - Position and vibration testing (posterior column) as well as pinprick assessment
- GAIT:
    - MOTOR ATAXIA → wide-based with unsteady and irregular steps
    - SENSORY ATAXIA → loss of proprioception is notable for abrupt movement of the legs and slapping impact of the feet with each step

SPECIAL POPULATIONS:

- THE GERIATRIC PATIENT:
    - Gait changes with advancing age → gait slowing, shortening of the stride and widening of the base "guarded gait"
    - May be due to neuronal loss, failing proprioception, slowing of corrective responses or weakness of the lower extremities
    - Senile gait is thought to exist in 25% of elderly population
    - Consider possibility of degenerative disorder (Parkinsonism, normal pressure hydrocephalus)
- ALCOHOLIC PATIENT:
    - History of alcoholism or malabsorption in a patient with a gait disorder should raise possibility of a potentially remedial nutritional problem → if acute motor ataxia is present with confusion or eye movement abnormalities ,the possibility of WERNICKE'S ENCEPHALOPATHY should be entertained (IV THIAMINE)
    - There is also a separate entity of ALCOHOLIC CEREBELLAR DEGENERATION
- CHILDREN:
    - Differential diagnosis is extensive

Table 163-2 Causes of Acute Ataxia in Children, Roughly in Order of Frequency	
Cause	**Example**
Drug intoxication	Ethanol
	Isopropyl alcohol
	Phenytoin
	Carbamazepine
	Sedatives
	Lead, mercury
Idiopathic	Acute cerebellar ataxia of childhood
Infection and inflammation	Varicella
	Coxsackievirus A and B
	Mycoplasma
	Echovirus
	Postinfectious inflammation
	Postimmunization
Neoplasm	Neuroblastoma
	Other central nervous system tumors
Paraneoplastic	Opsoclonus-myoclonus syndrome
Trauma	Subdural or epidural posterior fossa hematoma
Congenital or hereditary	Pyruvate decarboxylase deficiency
	Friedreich's ataxia
	Hartnup disease
Hydrocephalus	
Cerebellar abscess	
Labyrinthitis/vestibular neuronitis	
Transverse myelitis	
Meningoencephalitis	