Cerebral Palsy in Adults

Description/Etiology
Cerebral palsy (CP) in adults is characterized as a set of disorders of the development of movement, balance, and posture. CP can be caused by any of the following: underlying structural abnormality of the brain; early prenatal, perinatal, or postnatal insult from vascular deficiency; toxins or infections; or the pathophysiologic factors of prematurity. Some cases have an unknown etiology. CP is divided into syndromes based on varying degrees of neurologic involvement, including spastic diplegia, spastic quadriplegia, hemiplegia, and extrapyramidal (e.g., athetoid, dyskinetic). Potential complications of CP include seizures, infections, malnutrition, cognitive disability, physical disability, difficulties with activities of daily living (ADLs), communication deficits, visual impairment, and/or auditory impairment. (For more information on CP and related patient care, see Quick Lesson About ... Cerebral Palsy).

Diagnosis of CP is made with a thorough history and physical, including a detailed neurologic examination. There are no specific laboratory tests for the diagnosis of CP. Radiologic imaging with MRI and/or CT scan of the brain can identify the area of the brain where CP is caused by a non-progressive lesion.

There is no cure for CP; it is a life-long disorder. As the life expectancy of individuals with CP increases, research is focusing on nutrition, physical rehabilitation and motor training, ADLs, and effective communication (e.g., augmentative or alternative). Treatment is supportive and is individualized according to clinical presentation of the patient. Pharmacologic treatment includes medication for seizures, medication for spasticity (e.g., baclofen, benzodiazepines), and/or antibiotics for secondary infection. Prognosis depends on the type and severity of CP; the more severe the type, the lower the QOL. Patients with CP can develop signs of premature aging, including early-onset cardiovascular and respiratory dysfunction.

Facts and Figures
CP is one of the most common chronic motor disabilities and occurs in 1.5–4 per 1,000 live births. CP is more common among males than females, and males tend to have an increased severity of CP. CP is also more common among non-Hispanic blacks than non-Hispanic whites and Hispanics. An estimated 30–50% of patients with CP have cognitive disability and some form of learning disability occurs in up to 75%. Currently, 65–90% of patients with CP live to adulthood. An estimated 77.4% of adults with CP develop spasticity, 80% have muscle contractures, 18% experience pain daily, and 30–40% of patients who were ambulatory in childhood report a deterioration in walking ability by early to middle adulthood. About 24% work full-time and 18% live on full disability benefits.

Risk Factors
Eighty-five to ninety percent of cases of CP are the result of brain damage that occurs before or during birth and are classified as congenital CP, although the exact cause is unknown. Risk factors for congenital CP include low birth weight, premature birth, multiple births, assisted reproductive technology infertility treatment, infections during pregnancy, jaundice and kernicterus, and birth complications. Risk factors for acquired CP include meningitis or encephalitis, head injuries, and cerebrovascular accident.
Signs and Symptoms/Clinical Presentation

Clinical presentation is variable and can be mild or severe; presentation depends on the type of CP and the part of the brain that is affected. Some patients have seizures, scoliosis, urinary incontinence, chronic pain and fatigue, constipation, and/or visual or hearing disturbances. Cognitive impairment and learning disabilities can be evident. Other patients have normal intellect and can be high functioning but have difficulty with communication and deficits in physical or motor skills and ADLs.

Assessment

› Patient History
  • Inquire about the presence of the following characteristic manifestations of CP:
    – Neurologic manifestations (e.g., poor head control, ataxia, spasticity)
    – History of failure to thrive secondary to poor weight gain; ask if the patient has swallowing difficulties or neurologic impairment that makes eating difficult
    – History of recurring infection, particularly aspiration pneumonia
    – Vomiting, constipation, and/or urinary incontinence and a history of scoliosis
    – Chronic pain and/or fatigue
  • Ask about independence with ADLs, communication and physical barriers (including with transportation), employment, sex life, relationships, and driving status

› Physical Findings of Particular Interest
  • Intellectual disability, visual abnormalities (e.g., nystagmus, strabismus), hearing loss, speech delays, and behavioral difficulties can be present; patients can be underweight or have a short stature
  • Patients with spastic diplegia demonstrate the following:
    – Bilateral spasticity of the legs and arms, and the feet are in an equinovarus position
    – Spasticity in the legs, brisk deep tendon reflexes (DTR), ankle clonus, and bilateral positive Babinski sign
    – Severe cases result in extensive adduction of the hips and/or disuse atrophy and impaired growth of the legs
    – Normal intelligence is usual, and seizures are minimal; individuals with seizures can have learning disabilities and visual disturbances
  • Patients with spastic quadriplegia demonstrate the following:
    – Marked motor impairment of all extremities with increased tone and spasticity
    – Plantar extensor responses and brisk reflexes, and flexion contractures of knees and elbows
    – Cognitive disability, developmental and/or speech delays, and seizures and/or visual disturbances
    – Swallowing difficulties are common
  • Patients with hemiplegia demonstrate the following:
    – Significant upper limb dysfunction with decreased spontaneous movements on affected side (the arms are affected more than the legs), increased muscle tone and spasticity with irregular and prolonged movements, and equinovarus deformity of the foot
    – A seizure disorder can be present and increased DTR with or without a positive Babinski sign
  • Patients with extrapyramidal movement disorders demonstrate the following:
    – Dystonia and rigidity with involuntary flexion and extension contractures and limbs in fixed positions; arms are more affected than the legs
    – Feeding difficulties with protruding tongue and drooling; patients can have speech delays or absent speech secondary to weak oropharyngeal muscles
    – Normal intelligence occurs in most patients and seizures are uncommon

› Laboratory Tests That Can Be Ordered
  • Urine quantitative organic acid and serum quantitative amino acid will identify inherited metabolic disorders, if present
  • Serum ammonia level can identify liver dysfunction or urea cycle defect (indicated by elevated ammonia), if present
  • Serial serum glucose and albumin values will identify hypoglycemia and malnutrition, if present

› Other Diagnostic Tests/Studies
  • MRI or CT scan of the head will identify abnormal regions in the brain, if present
  • EEG monitoring will identify seizure activity and patterns, if present
  • Visual acuity tests will identify impaired vision, if present
  • Audiometric evaluation will identify hearing loss, if present
  • Bone density scan will identify osteopenia or osteoporosis, if present
Treatment Goals

› Promote Optimal Physiologic Function and Reduce Risk of Complications
  • Monitor vital signs, all physiologic systems, and laboratory/other diagnostic study results; report abnormalities and treat, as ordered
  • Assess fall risk (for details, see Red Flags, below) and follow facility protocols to maintain patient safety (e.g., airway, circulation, and prevention of injury)
  • Assess for feeding, and/or swallowing difficulties
    – Administer feedings, as ordered; monitor intake and output, daily weight and treatment efficacy by reviewing daily serum glucose and albumin laboratory values
    – As appropriate, request a referral to a
      - speech therapist for a swallowing evaluation
      - registered diettian for patient evaluation, nutritional education and dietary supplementation
  • Administer prescribed medications, including antibiotics for infections, antispasticity medications, analgesics, and/or antiseizure agents for seizure activity, as ordered
  • Request adaptive equipment (e.g., walker, motorized wheelchairs), as appropriate
  • Utilize hand gestures and touch, and encourage the patient to use gestures or point; if appropriate the use of a communication board
  • Approach the patient from the side on which hearing and/or sight is the best

› Support Emotional Well-Being and Educate
  • Assess anxiety level, coping ability and learning readiness of patient and family; provide emotional support and promote a positive self-image for patients who have experienced a dramatic change in lifestyle due to CP-related functional limitations
  • Educate and encourage discussion regarding CP, risks and benefits of treatment, changes in body image and function, what to expect during recovery from treatment, and individualized prognosis
  • As appropriate, request referral to a(n)
    – occupational and/or physical therapy clinician for movement-based training and motor-focused rehabilitative programs
    – mental health clinician for counseling on strategies for coping with having CP
    – social worker for identification of local resources for in-home care, support groups, financial planning, transportation, and Internet resources (e.g., http://ucp.org/)

Food for Thought

› Adults with CP who have a high self-concept often had strong parental support as children
› In adults with CP, greater functional capacity is associated with higher self-esteem[4]
› As pediatric patients with CP reach adulthood, a comprehensive healthcare transition plan should be formulated to maximize their general well-being and health-related QOL[3,5]
› Researchers in a study of 33 adults diagnosed with CP aimed at evaluating environmental factors, perceived cause, and consequences of falls found that participants who experienced at least 1 fall in the previous year experienced adverse fall consequences including embarrassment, powerlessness, fear, isolation and lower limb injuries[8]
› For young adults with CP, adding anaerobic training to resistance training can increase muscle size, strength, and functional capacity[6]

Red Flags

› Adults with CP can report a decline in function (e.g., ability to independently get dressed) and/or persistent pain and fatigue with age, which can affect ADLs and social and work life and/or lead to cessation of walking
› Patients with CP often have a decline in mobility by early to middle adulthood that affects balance and is associated with increased risk of falls[2]

What Do I Need to Tell the Patient/Patient’s Family?

› Adults with CP can lead healthy and active lives even with physical disability
› Autonomy and strong family support improve QOL
› Educate about the importance of adherence to the prescribed treatment regimen and continued medical surveillance
Seek immediate medical attention for new or worsening signs and symptoms (e.g., seizures, pain, and/or visual or hearing disturbances)

Attend a support group for contact with others who face similar health challenges

References


5. Freeman, M., Stewart, D., Cunningham, C. E., & Gorter, J. W. (2018). ‘If I had been given that information back then”: Interpretive description exploring the needs of adults with cerebral palsy looking back on their transition to adulthood. *Child: Care, Health & Development*, 72(3), 1-8. doi:10.1111/cch.1257 (R)


