AAN Guideline Summary for CLINICIANS

PRACTICE PARAMETER: DIAGNOSTIC ASSESSMENT OF THE CHILD WITH CEREBRAL PALSY

This is a summary of the American Academy of Neurology (AAN) and the Child Neurology Society (CNS) guideline evaluating the value and utility of investigative tests used to evaluate children diagnosed as having Cerebral Palsy (CP). Additionally, this parameter reviewed evidence pertaining to the frequency of other correlated health issues in children with CP, such as epilepsy, mental retardation, and ophthalmologic and hearing impairments. There is insufficient evidence to recommend the best sequence of tests to determine the etiology of CP. Taking into account diagnostic yield and potential ability to treat, the AAN developed the following consensus-based evaluation algorithm.

EVIDENCE FOR DIAGNOSTIC ASSESSMENT FOR CHILDREN WITH CP

	Neuroimaging (MRI and CT)
Strong evidence supports	• Neuroimaging is recommended in the evaluation of a child with CP if the etiology has not been established, for example by perinatal imaging (Level A*, Class** I and II evidence). • MRI, when available, is preferred to CT scanning because of the higher yield of suggesting an etiology and timing of insult leading to CP (Level A, Class I-III evidence).

	Metabolic and genetic testing	Coagulopathies
Good evidence supports	Metabolic and genetic studies need not be routinely obtained in the evaluation of the child with CP (Level B, Class II and III evidence).	Because the incidence of unexplained cerebral infarction seen with neuroimaging is high in children with hemiplegic CP, diagnostic testing for a coagulation disorder should be considered (Level B, Class II-III evidence). There is insufficient evidence to be precise as to what studies should be ordered.

	Metabolic and genetic testing
Weak evidence supports	• If the clinical history or findings on neuroimaging do not determine a specific structural abnormality or if there are additional and atypical features in the history or clinical examination, metabolic and genetic testing should be considered (Level C, Class III and IV). • Detection of a brain malformation in a child with CP warrants consideration of an underlying genetic or metabolic etiology (Level C, Class III and IV evidence).

EVIDENCE FOR EVALUATION OF ASSOCIATED CONDITIONS FOR CHILDREN WITH CP

	EEG for Epilepsy	Screening for mental retardation, ophthalmologic impairments, speech and language disorders
Strong evidence supports	• An EEG should not be obtained for the purpose of determining the etiology of CP (Level A; Class I and II evidence). • An EEG should be obtained when a child with CP has a history or examination features suggesting the presence of epilepsy or an epileptic syndrome (Level A; Class I and II evidence).	Because of the high incidence of associated conditions, children with CP should be screened for mental retardation, ophthalmologic and hearing impairments, and speech and language disorders (Level A, Class I and II evidence). Nutrition, growth, and swallowing should be monitored. Further specific evaluations are warranted if screening suggests areas of impairment.

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History and Examination Findings Suggest Diagnosis of CP (non-progressive disorder of motor control)

1. Confirm that the history does not suggest a progressive or degenerative central nervous system disorder.
2. Assure that features suggestive of progressive or degenerative disease are not present on examination.
3. Classify the type of CP (quadriplegia, hemiplegia, diplegia, ataxic, etc). For the most part this classification system is one of convenience, i.e., easy communication. It does not necessarily relate to prognosis or to what treatments are indicated.
4. Screen for associated conditions including:
   - Developmental delay/mental retardation
   - Ophthalmologic/hearing impairments
   - Speech and language delay
   - Feeding/swallowing dysfunction
   - If history of suspected seizures, obtain an EEG

Did the child have previous neuroimaging or other laboratory studies? (e.g., in neonatal period) that determined the etiology of CP?

YES

No need for further diagnostic testing

NO

Obtain Neuroimaging study (MRI preferred to CT)

NORMAL MRI

1. Consider metabolic or genetic testing if upon follow-up the child has:
   - Evidence of deterioration or episodes of metabolic decompensation
   - No etiology determined by medical evaluation
   - Family history of childhood neurologic disorder associated with CP

ABNORMAL MRI

1. Determine if neuroimaging abnormalities in combination with history and examination establishes a specific etiology of CP.
2. If developmental malformation is present, consider genetic evaluation.
3. If previous stroke, consider evaluation for coagulopathy or other etiology.

This guideline summary is evidence-based. The AAN uses the following definitions for the level of recommendation and classification of evidence. ***Recommendation Level:** "Level" refers to the strength of the practice recommendation based on the reviewed literature. **Level A**: Established as effective, ineffective or harmful or as useful/predictive or not useful/predictive; **Level B**: Probably effective, ineffective or harmful or as useful/predictive or not useful/predictive; **Level C**: Possibly effective, ineffective or harmful or as useful/predictive or not useful/predictive; **Level U**: Data inadequate or conflicting; treatment, test or predictor unproven.

****Class of Evidence:** "Class" refers to the quality of research methods employed in the reviewed literature **Class I**: A statistical, population-based sample of patients studied at a uniform point in time (usually early) during the course of the condition. All patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation that is masked to the patients' clinical presentations; **Class II**: A statistical, non-referral-clinic-based sample of patients studied at a uniform point in time (usually early) during the course of the condition. Most (>80%) patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation that is masked to the patients' clinical presentations; **Class III**: A selected, referral-clinic-based sample of patients studied during the course of the condition. Some patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation by someone other than the treating physician; **Class IV**: Expert opinion, case reports, or any study not meeting criteria for Class I to III. This is a new Classification scheme developed by the QSS for studies related to determining the yield of established diagnostic and screening tests or interventions and is appropriate only when the diagnostic accuracy of the test or intervention is known to be good. Additionally, the abnormality potentially identified by the screening intervention should be treatable or, should have important prognostic implications. This Classification is different than others currently recommended by the QSS that have been published in recent parameters that relate to diagnostic, prognostic, or therapeutic studies.

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