Endocrine: Precocious Puberty—Health care guidelines for Spina Bifida

Precocious Puberty

Primary outcome: Timely assessment, identification, appropriate referral, and management of precocious puberty.

Secondary outcome: Decrease risk of unwanted consequences of precocious puberty among children with spina bifida.

Discussion: Puberty is defined as presence of secondary sexual characteristics. For girls, breast development, and for boys enlargement of the penis and testicles. Precocious puberty is defined as the onset of puberty before age eight years in girls and 9 years in boys. Children, especially girls with spina bifida and hydrocephalus are at a higher risk to have precocious puberty compared to typical girls. Most likely due to the hydrocephalus stimulating the brain to release signals in the blood to start puberty early.

Problems with early onset of puberty:

- Shorter than expected height
- Decreased bone density
- Psychological and psychosocial problems
- Difficulties with hygiene

Parents and caregivers should look for:

- **Girls:**
  - Breast development
  - Growth spurt
  - Development of pubic hair
  - Body hair
- **Boys:**
  - Growth of the penis and testicles
  - Development of pubic hair
- **Primary Care Provider:**
  - Monitor growth chart
  - Examine for signs of puberty
  - If early onset of puberty identified:
    - Bone age film
    - Luteinizing hormone
    - Follicle-stimulating hormone
    - Estradiol (girls)
    - Testosterone (boys)
  - Refer to endocrinologist
Clinical care guidelines for Precocious Puberty

Outcomes

Infancy

• Clinical Questions
  o Does the infant show any signs of early puberty

• Guidelines
  o At every well child visit, close monitoring of weight and height velocity should be obtained and documented.
  o A complete physical exam including genitalia should be performed at each visit.
  o Document all positive and negative findings of the physical exam.
  o Discuss with the parents or caregivers outcomes of evaluation and ask if the family has any concerns.
  o If abnormal signs of puberty are observed consider a referral to an endocrinologists.

Toddler

• Clinical Question
  o Does the toddler show any signs of early puberty

• Guidelines
  o At every well child visit, close monitoring of weight and height velocity should be obtained and documented.
  o A complete physical exam including genitalia should be performed at each visit.
  o Document all positive and negative findings of the physical exam.
  o Discuss with the parents or caregivers outcomes of evaluation and ask if the family has any concerns.
  o If abnormal signs of puberty are observed consider a referral to an endocrinologists.

Preschool

• Clinical Question
  o Does the young child show any signs of early puberty
Guidelines

- At every well child visit, close monitoring of weight and height velocity should be obtained and documented.
- A complete physical exam including genitalia should be performed at each visit.
- Document all positive and negative findings of the physical exam.
- Discuss with the parents or caregivers outcomes of evaluation and ask if the family has any concerns.
- If abnormal signs of puberty are observed consider a referral to an endocrinologist.

School age

- Clinical Questions
  - Does the child show any signs of puberty?
  - Is the child of an age where puberty should begin?
  - Do the parents have any concerns about the child’s growth and development?
  - Does the child have any concerns about their growth or development?

- Guidelines
  - At every well child visit, close monitoring of weight and height velocity should be obtained and documented.
  - A complete physical exam including genitalia should be performed at each visit.
  - Document all positive and negative findings of the physical exam with the parent or caregiver.
  - Discuss with the parents or caregivers outcomes of evaluation and ask if the family has any concerns.
  - If there is clear evidence of abnormal timing, tempo, or sequence of pubertal development, the patient should be referred to a pediatric endocrinologist.
  - If the child is having psychosocial issues with their growth or development a referral to a mental health professional should be considered.

Teenage

- Clinical Questions
  - Is the child of an age where puberty should have begun?
  - Do the parents have any concerns about the child’s growth and development?
  - Does the child have any concerns about their growth or development?
• **Guidelines**
  o At every Health Maintenance Visit, close monitoring of weight and height velocity should be obtained and documented.
  o A complete physical exam including genitalia should be performed at each visit.
  o Document all positive and negative findings of the physical exam with the parent or caregiver.
  o Discuss with the parents or caregivers or patient outcomes of evaluation and ask if the family or patient has any concerns.
  o If there is clear evidence of abnormal timing, tempo, or sequence of pubertal development, the patient should be referred to a pediatric endocrinologist.
  o If the adolescent is having psychosocial issues with their growth or development a referral to a mental health professional should be considered.

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**Adult**

• **Clinical Questions**
  o Does the patient or caregiver have any concerns about sexual development or function?

• **Guidelines**
  o A complete physical exam including genitalia should be performed at each visit.
  o Document all positive and negative findings of the physical exam with the patient or caregiver.
  o Discuss with the patient or caregivers outcomes of evaluation and ask if the family or patient has any concerns.
  o If the patient is having psychosocial issues with their growth or development a referral to a mental health professional should be considered.
  o Male sexual health issues should be discussed and appropriate referrals made to urology or other subspecialists.

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**RESEARCH GAPS**

1. What effect does precocious puberty have on psychological development of an individual with spina bifida?
2. Is there an optimal age to intervene when precocious puberty is identified?
3. What can the primary provider do in the office to evaluate precocious puberty in a child with spina bifida?

References