Development of the Serum α-Fetoprotein Reference Range in Patients with Beckwith-Wiedemann Spectrum (2019)

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Background

Alpha-fetoprotein (AFP) is a liver marker that is used to detect hepatoblastoma. At birth, AFP levels are initially elevated and decrease with age. Interpreting AFP values can be difficult as values can differ between patients and as a result, some groups do not use AFP as part of tumor screening protocol for patients with Beckwith-Wiedemann Spectrum (BWSp).

Purpose

This study evaluated AFP values of patients with BWSp and created reference ranges to help with interpretation of values.

Findings

1372 AFP values from 147 patients were collected and analyzed. Statistical tests were performed to calculate the "predicted" AFP value at various ages based on models. Factors such as age, sex, prematurity, BWSp molecular subtype and performing laboratory (where the AFP test was done) were analyzed to see if they affected AFP values.

- AFP values tend to decline to normal range by age 14 months, although a wide variation in values exists between patients.
- Premature babies tend to have higher AFP values than full-term babies.
- AFP values may differ by BWSp molecular cause, however more data are needed.
- AFP values do not appear to differ between males and females.
- The performing laboratory does not seem to significantly affect AFP values.

Conclusion

This study created AFP reference ranges to use when interpreting AFP values. AFP values can differ between patients and premature patients tend to have higher AFP values than full-term patients. AFP values should be followed with the expectation that they will decline over time.

Key Points

- The decreasing trend in AFPs is more important than individual values when interpreting AFPs.
- AFP values tend to be higher in premature patients.

Reference

Duffy KA, Cohen JL, Elci OU, Kalish JM. Development of the Serum α- Fetoprotein Reference Range in Patients with Beckwith-Wiedemann Spectrum. *J Pediatr.* 2019;212: 195 – 200.e2. PubMed PMID: 31235384

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