TEST UPDATE

Age Adjusted D-Dimer Calculation

UVMMC

Starting July 9, 2024, the UVM Health Network laboratories will provide an Age-Adjusted D-Dimer (AADD) calculated value in addition to the measured D-Dimer result. This is calculated using the formula: **AADD ng/mL DDU </= (Age X 5) – 20**. The AADD value will be automatically calculated for patients between >50 years of age and <75 years by EPIC and reported in the comment section of the laboratory results. As an example in a 52-year-old patient, the diagnostic comment will contain the following information:

- Cut-off value for the exclusion of VTE: </= 230 ng/mL DDU.
- Age Adjusted D-Dimer (AADD) VTE exclusion value based on this patient's age is </= 240 ng/mL DDU.
- In patients less than 50 years of age, the D-Dimer VTE exclusion remains at </= 230 ng/mL DDU.
- For patients 75 years and older, there is limited outcome data for the use of AADD; no AADD calculation will be performed for these patients.
- The appropriate D-Dimer value used to exclude VTE is at the discretion of the medical provider.

In this example, the AADD </= 240 ng/mL DDU is based on the calculation:

AADD = (52 x 5) – 20 </= 240 ng/mL DDU

The reference value in EPIC associated with all patient results will remain as </=230 ng/mL DDU.

D-Dimer naturally increases with age, and the AADD modifies the traditional D-Dimer cutoff values based on a patient's age. The AADD calculation increases the threshold for an elevated or "positive" D-Dimer in accordance with a person's age, and therefore has the potential to reduce the number of people that unnecessarily undergo further investigation.

In patients less than 50 years of age, the D-Dimer venous thromboembolism (VTE) exclusion remains at </= 230 ng/mL DDU. For patients 75 years and older, there is limited outcome data for the use of AADD. Therefore, the AADD will only be calculated for individuals >50 years of age and <75 years. The appropriate D-Dimer value used to exclude VTE is at the discretion of the medical provider.

D-Dimer, a degradation product of cross-linked fibrin, is elevated in nearly all patients with acute deep vein thrombosis (DVT), pulmonary embolism (PE) and disseminated intravascular coagulation (DIC) (i.e., it is highly sensitive). However, it is nonspecific since elevated levels are found in many other conditions (malignancy, sepsis, recent surgery or trauma, pregnancy, kidney failure). A normal or "negative" D-Dimer result is useful for ruling out DVT/PE, particularly in those with a low or moderate pre-test probability for thrombosis. A positive D-Dimer is not diagnostic of a VTE event and indicates the need for further investigation.

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THE University of Vermont HEALTH NETWORK

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When determining quantitative D-Dimer levels, there are two different units of measurement: fibrinogen equivalent units (FEUs) and D-Dimer units (DDUs). The two numerical values are easily convertible to each other since the mass of one unit of FEU equals approximately half of one DDU: 1 FEU = 2 X DDU. **The UVM Health Network labs measure D-Dimer levels using DDUs**. The FDA approved cutoff for our assay is </= 230 ng/mL DDU.

For more information or questions regarding this change, please contact the appropriate Health Network Medical Director:

- AHMC: Leonardo Dishman, MD
- CVPH: Eric Gorman, MD
- ECH, TI, PMC: Vlada Alexeeva, MD
- UVMMC: Andy Goodwin, MD
- CVMC: Jason Brazelton, MD

References:

- Parks C., et al. Investigation of age-adjusted D-Dimer using an uncommon assay. Am J Emerg Med. 2019 July; 37(7): 1285–1288.
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- Fan BE., et al. D-dimer Levels for the exclusion of pulmonary embolism: making sense of international guideline recommendations. J Thromb Haemost. 2024;22:604–608.

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