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Cystatin C Testing Indications in Patients

January 11, 2024

Test Indications:

Cystatin C testing is indicated in patients:

1) With atypical muscle mass (e.g. Muscular Dystrophy, prolonged hospitalization or immobilization, amputation, malnourishment, body building (not taking rhGH), etc.)
2) On a high-protein diet and/or on creatine supplementation
3) With volatile serum creatinine levels and uncertainty in their GFR classification (e.g. classification G3a vs G3b)
4) Where there is analytical uncertainty in creatinine results (i.e. interference)

Cystatin C testing is NOT indicated in the following:

1) **Patients with hypo- or hyperthyroidism.**
    - **TSH should be verified prior to requesting CysC** as hypothyroid and hyperthyroid patients will have lowered and elevated CysC concentrations, respectively, primarily due to the actions of triiodothyronine (T_3).
    - TSH should be corrected into the normal range for at least two weeks prior to testing CysC.

2) **Patients with impaired kidney function and currently taking high-dose corticosteroids or recently tapered from a high dose**
    - Glucocorticosteroids elevate circulating CysC levels via mechanisms independent of renal function.
    - Patients who are on chronic (>2 weeks), low or physiological doses of corticosteroids should not be affected and may benefit from CysC testing
    - A two-week washout period is recommended prior to testing patients coming off a steroid taper.

3) **Patients with elevated levels of Growth Hormone**
    - CysC levels will be elevated, independent of renal function
    - Therefore, CysC levels may not be reliable in patients with acromegaly, or those taking recombinant human growth hormone (rhGH)

References:

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3. Wiesli P, Schwegler B, Spinas AS, et al. Serum Cystatin C is Sensitive to Small Changes in Thyroid Function. *Clin Chim Acta*. 2003. 338(1): 87-90.
4. Bokenkamp A, van WIjk JAE, Lentze ML, et al. Effect of Corticosteroid Therapy on Serum Cystatin C and β2-Microglobulin Concentrations. *Clin Chem*. 2002. 48: 1123-1126