COLLEGE of AMERICAN PATHOLOGISTS

Urine Myoglobin

SYNOPSIS AND RELEVANCE

Urine myoglobin testing is primarily indicated for diagnosis and risk assessment of kidney injury in patients with rhabdomyolysis. However, its utility is limited by lack of rapid and reliable results. Myoglobin reacts positively for blood by urinalysis which can serve as an adjunct for myoglobinuria. Lack of hemoglobin by urinalysis can reliably predict the absence of myoglobinuria and can be used to avert over-testing for urine myoglobin while also providing useful diagnostic information when urine myoglobin test results are not immediately available**.**

INSIGHTS

Measurement of urine myoglobin is unnecessary in cases with absent or only small amounts of blood by urinalysis which excludes the presence of clinically significant myoglobinuria.

BACKGROUND

There are numerous limitations associated with the clinical use and interpretive value of urine myoglobin measurement for patients with rhabdomyolysis and risk of acute kidney injury. First, accurate urine myoglobin results are generally not available for initial evaluation since most clinical laboratories do not perform this test. Furthermore, myoglobin in urine is unstable which may affect reliability of results from specimens that are not immediately processed or appropriately handled before testing. In contrast, urinalysis is routinely performed on demand by nearly all laboratories and is generally not substantially affected by preanalytical factors. While urinalysis lacks specificity for myoglobinuria, its use as a rapid surrogate test for urine myoglobin in rhabdomyolysis is well established.

Measurement of urine myoglobin is unnecessary in cases with absent or only small amounts of blood by urinalysis which excludes the presence of clinically significant myoglobinuria. Conversely the presence of increasing amounts of blood by urinalysis progressively raises the probability of myoglobinuria, especially in the absence of hematuria. When urine myoglobin cannot be promptly and accurately measured, its value is limited to that of a confirmatory test, with marginal impact on the initial diagnosis and management of rhabdomyolysis compared to urinalysis.

REFERENCES

1. Bosch X, Poch E, Grau JM. Rhabdomyolysis and acute kidney injury. *N Eng J Med*. 2009;361(1):62-72. Updated *N Engl J Med*. 2011.364(20):1982. doi: 10.1056/NEJMra0801327
2. Schifman, RB, Luevano D. Initial assessment for blood by urinalysis improves test utilization for myoglobinuria. Abstracts and case studies from the College of American Pathologists 2015 annual meeting (CAP '15). *Arch Path Lab Med*. 2015;139(10):e67. https://doi.org/10.5858/arpa.2015-0241-AB
3. Stahl K, Rastelli E, Schoser B. A systematic review on the definition of rhabdomyolysis. *J Neurol*. 2020;267(4):877-882. doi:10.1007/s00415-019-09185-4

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