



A CASE OF UNMASKING A HIDDEN CULPRIT: DRUG INTERFERENCE IN BILIRUBIN TESTING

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KEYWORDS :

This report sheds light on a potential challenge in clinical chemistry testing - how medications can interfere with test results, leading to misinterpretations.

The Intricate Dance of Lab Testing:

Laboratory testing serves as a cornerstone of medical decision-making, influencing a vast majority of healthcare choices.(1) This process is a well-coordinated dance with three key phases: pre-analytical (sample collection and preparation), analytical (the actual testing), and post-analytical (result reporting and interpretation).(2) However, the pre-analytical phase is often considered the most error-prone, particularly when it comes to factors related to the patient, such as medications they are taking. Certain drugs can influence test results through analytical interference (directly affecting the test itself) or physiological interference (altering the body's processes that the test measures).(3)

Prevention of preanalytical errors and subsequent prevention of inappropriate treatment of patients due to incorrect test results, requires the permanent awareness of the primary factors linked to patient variables, sample collection and processing (4).

Case Study:

This report describes the case of a 63-year-old male patient diagnosed with myelodysplastic syndrome (8th day post bone marrow transplantation) who underwent a routine liver function test.

The test results presented a perplexing picture: the level of conjugated bilirubin (Bc), was higher than the total bilirubin level. Normally, conjugated bilirubin makes up a smaller portion of total bilirubin. A repeat test was conducted to confirm the initial findings, further solidifying the unusual results.

Unearthing the Root Cause:

Through close collaboration with the patient's clinician, a crucial piece of information came to light - the patient was taking nitazoxanide, a medication known to interfere with the assay used to measure conjugated bilirubin(Bc).(5) This interference caused the test to produce falsely elevated Bc levels. Once the medication was discontinued, a follow-up test conducted five days later revealed a normal Bc level, confirming the initial suspicion of drug interference.

Values on day 1:

S. No	Test Name	Result
1	Total Bilirubin	0.5 mg/dL
2	Conjugated Bilirubin(Bc)	1.53 mg/dL
3	Unconjugated Bilirubin(Bu)	0.09 mg/dL

Values after 5 days of discontinuing drug Nitazoxanide:

S. No	Test Name	Result
1	Total Bilirubin	0.39 mg/dL
2	Conjugated Bilirubin(Bc)	0.00 mg/dL
3	Unconjugated Bilirubin(Bu)	0.14 mg/dL

Conclusion: A Call for Vigilance

This case serves as a stark reminder that pre-analytical factors, particularly medications, can significantly impact test results. A complete and accurate patient medication history is paramount for accurate interpretation of laboratory tests. By raising awareness of drug interference, healthcare professionals can work together to improve patient care by reducing the potential for misdiagnosis, unnecessary treatment interventions, and additional testing. This vigilance ultimately leads to better patient outcomes.

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