

CBC Meaning and Interpretation (Part 2)

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Interpretation:

The CBC is an important part of any work up of an individual for any disease state and addiction is no exception. It assists in the following important ways:

- Documentation of changes that relate to the severity of the patient's state of addiction.
- Support of the diagnosis of the drug of abuse.
- Diagnosis of other serious disorders that may or may not be secondary to drug use but which need to be treated.
- Compliance with the standard of care necessary for good medical practice.
- Documentation support for the level of care being rendered.
- Documentation support in the event of legal proceedings.

Alcohol:

Alcohol is by far, except for tobacco, the most prevalent drug of abuse and the most easy to see the effects it has on the CBC.

The degree of effects will depend on the stage and severity of the patient's disease and if the patient has secondary diseases as a result of their alcoholism. Secondary diseases include cirrhosis, esophageal varices, ascites, congestive heart failure, pancreatitis, anemia, porphyria, and liver failure among others.

- RBC count, Hct (hematocrit), and Hgb (hemoglobin) - These values are most often LOW, except in the face of dehydration which can occur due to vomiting and acute intoxication when they may be elevated due to the relative loss of the plasma component of the blood. The most important medical emergency to detect and treat is gastrointestinal bleeding. This occurs with esophageal varices and stomach ulcerations. The bleeding may be acute or chronic and can frequently be differentiated by looking at the mean cell volume (MCV) and mean cell hemoglobin (MCH). Chronically these three values (RBC, Hct, Hgb) can be low due to the direct toxic effects of alcohol on the bone marrow reducing the production of all blood components (pancytopenia).
- WBC count - As mentioned above, due to bone marrow toxicity, there

may be a reduction of white blood cells. Alternatively, alcoholics are immuno-suppressed predisposing them to infection in general and the WBC count may be high with a left shift. Due to loss of the gag reflex when intoxicated the patient may aspirate stomach contents while vomiting causing a chemical pneumonia. Alcoholics are especially susceptible to gram negative bacterial pneumonia. When ascites is present the patient can present with a bacterial peritonitis and a possible complication can be ascending bacterial cholangitis that results in hepatitis and liver failure.

- PLT (platelet count) - Low platelet counts are frequently encountered in alcoholism and at times may be critically low (less than 30K) predisposing patients to fatal GI hemorrhage or intracranial bleed. It should be remembered that intoxicated alcoholics commonly fall, have head injuries, and can have withdrawal seizures, all of which can have fatal bleeding consequences. Low circulating platelets can also be seen when the spleen is enlarged due to portal hypertension.

Part 3 of this article will appear in the January issue of Toxicology Times

??? Did You Know ???

Prescription drug misuse and abuse is the intentional or unintentional use of medication without a prescription, in a way other than prescribed, or for the experience or feeling it causes. Results from the 2013 National Survey on Drug Use and Health (NSDUH) (PDF | 3.2 MB) indicate that about 15.3 million people aged 12 or older used prescription drugs non-medically in the past year, and 6.5 million did so in the past month. This issue is a growing national problem in the United States. Prescription drugs are abused and misused more often than any other drug, except marijuana and alcohol. This growth is fueled by misperceptions about their safety, increasing availability, and varied motivations for their use from countering anxiety and helping sleep problems to getting high. Source: SAMHSA

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Question of the Month

Question: What is a "trough" and a "peak"?

Answer: Quite often, a patient will complain that the methadone dose is not holding them. This could mean that the serum value of methadone has fallen below the effective dose for that patient. A trough test is the lowest serum methadone value for a patient and is measured on a patient's blood sample drawn just prior to consuming their daily methadone dose. The trough should give the concentration of methadone that is the baseline for each patient that is not in withdrawal. A peak test is the patient's post-dose serum methadone value and is drawn three to four hours after dose consumption. The peak should give the concentration of methadone at its highest point without making the patient feel drugged or 'high'.