SDRL Laboratory

TOXICOLOGY TIMES

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IV Drug Use and Syphilis

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Syphilis is contracted primarily by direct sexual contact. The prevalence of risky sexual behavior in drug-dependent populations greatly increases the chance of a patient contracting this disease. Indeed, research has shown that the rate of viral disease associated with needle sharing or sexual activity is the highest in intravenous drug users.[1] Syphilis presents in stages with diverse symptoms that may not present in all patients. Many laboratories test for syphilis using a Rapid Plasma Reagin (RPR) test. This is a generic test that responds to the immunoglobin M and G produced in response to material (cardiolipin) released by damaged host cells in the patient. The RPR test is a rapid way to alert the physician that the patient may be infected. However, since the RPR test does not react to the disease agent itself, it should be followed up with a confirmatory test specific for syphilis, referred to as a treponemal test. Some diseases that trigger antibodies similar to syphilis, such as HIV, Lyme disease, malaria or lupus, can create a false positive result at a rate around 1%.

RPR quantification results are expressed as a ratio of serum dilution needed to obtain a negative test. Thus, the higher the dilution or titer needed, the more positive the test. As an example, a titer of 1:8 represents a serum that needed an 8 fold dilution to maintain a positive test before becoming negative at the next dilution. In primary syphilis the test is positive approximately 25% of the time at the appearance of the primary lesion, 50% at one week post appearance and 75% at two weeks. Virtually 100% will be positive by the time secondary syphilis develops. The development of a positive test may be interrupted by inadequate early treatment. Serological titers usually reach at least 1:4 in primary syphilis and rise for several weeks but revert back to nonreactive within 6 to 12 months post adequate treatment. There are cases that remain persistently reactive, however titers usually fall to 1:1 or 1:2. Following treatment for latent syphilis, patients with normal cerebrospinal fluid (CSF) examination should be retreated if a) titers increase fourfold b) an initially high titer (> 1:32) fails to decrease to at least fourfold (i.e., two dilutions) within 12 – 24 months of therapy or c) signs or symptoms attributable to syphilis develop.

Confirmation of a positive RPR necessitates a treponemal based test such as the FTA-Abs or TP-PA which, if positive, will confirm the diagnosis in all but rare conditions. Specificity is considered to be around 98%. Unlike non-treponemal serum testing these tests usually do not revert back to nonreactive.

Neurosyphilis diagnosis is performed on CSF using the venereal disease research laboratory (VDRL) as the standard test and considered diagnostic, but all tests must be interpreted in the light of the clinical picture. Additional tests of the CSF include a white blood cell count of 20 cells/ml and/or protein of 50mg/dl. Treatment response for neurosyphilis can be followed through declining CSF VDRL titers.

??? Did You Know ???

Prescription medications also are an important resource for treating mental and substance use disorders. Medications for mental and substance use disorders provide significant relief for many people and help manage symptoms to the point where people can use other strategies to pursue recovery. Medications work better for some people than others, even if they have the same disorders.

Medication effectiveness can also change over time, so it is not uncommon for a person to find that the medication needs to be changed or adjusted even after it has been working. Medications also often have significant side effects. As a result, it is important for people receiving medications for behavioral health problems to have regular contact with the prescribing provider to ensure that the approach being used continues to be safe and effective. Source: SAMHSA

Question of the Month

Question: *"What does it mean when a sample is Hemolyzed?"*

Answer: Hemolyzed samples contain blood cells that have broken open and released the cellular content into the serum. This cellular content interferes with most testing procedures. It releases proteins that interfere with antibody/antigen immunoassay reactions. In addition, it causes a release of chromogenic material that interferes with spectrophotometric assays. In samples where the cellular components are being measured, as in a CBC, any decomposition of these cellular components reduces the number measured. Further, when the cell wall breaks open releasing its contents, the cell wall can be mistakenly detected as cellular components themselves, such as platelets. In general, hemolysis is the first stage in decomposition of the sample, and it indicates the difference between a sample that is fresh and can be analyzed versus a sample that is in various stages of decomposition and cannot be analyzed accurately.

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