SDRL Laboratory

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Serum Methadone Q&A (part 2)

Part 1 of this article appeared in the June issue of *Toxicology Times*

Can serum values help determine if a patient should receive a split dose?

If there is a large discrepancy between the peak and trough values, the methadone is not holding steady in the blood over the course of 24-hours and withdrawal symptoms may appear. Based on the size of variation in these values, one assumption might be that the patient simply needs a dose increase. Instead, splitting the patient's dose at 12-hour intervals rather than issuing a single dose every 24-hours may better serve the patient. A once-per-day dose increase would simply increase the peak, causing greater sedation for part of the day while the patient continues to experience withdrawal symptoms later on. Follow-up serum testing can confirm if the split-dose methadone is holding steady in the patient's system.

What serum methadone values are considered "normal"?

A rough rule of thumb is that a patient's serum value is usually four times the dose amount. As an example, a patient with a dose of 80 milligrams per day would have an average serum value of 320 ng/mL. If the serum value exists at a value considerably higher than at this ratio, the patient is most likely consuming more than their prescribed dose. SDRL uses 1000 ng/mL as a toxic upper level and will call the clinic as a "warning" to notify of the possible toxic values. Conversely, a much lower than four-to-one serum-to-dose ratio could indicate dose diversion.

Are there factors that can influence the serum methadone values?

Yes. Two patients taking the same dose can and most likely will produce different serum values. Factors such as metabolism, the patient's physical condition and diet, body weight, absorption rates and even pregnancy can influence the values. Ultimately, the serum values are used as objective individual patient baselines, but subjective patient input is required to ensure that both cravings and withdrawal symptoms are being suppressed at the prescribed dose. A correlation can then be made between the objective and subjective data to ensure an adequate dosage is being prescribed or validate a patient's dose modification request.

How often should serum methadone testing be performed?

SDRL recommends that all patients in methadone maintenance treatment programs have their serum levels measured at least once per year, ideally during an annual physical. This will provide baseline values moving forward. Other times to consider serum methadone testing include any time the patient requests a dosing change and when negative urine methadone metabolite with the patients denial of dosing changes.

Why should a program consider serum methadone testing?

Testing serum values allows the clinic to take control of the management of the patient. Responding to patient requests for dose increase must be in-part founded on some clinical finding. Serum methadone, in combination with patient feedback (i.e. subjective confirmation of absence of withdrawal without over sedation) is a sufficient condition for this change in dose. Further, the measurement of serum values will insure against diversion, and will serve as a powerful indicator of under-dosed or early withdrawal patients.

??? Did You Know ???

The alcohol concentration in 2100mL of alveolar breath is equivalent to the alcohol concentration in 1.0mL of blood, which is equivalent to the alcohol concentration in 0.7mL of urine. Alcohol is measured and most commonly referenced in terms of Blood Alcohol Content, or BAC. BAC is the amount of alcohol in grams present in 100mL (1dL) of blood. The alcohol value in urine can be converted into a BAC value by simply taking the urine value in ng/dL and dividing by 1.3. For example, if a person has an alcohol urine value of 0.03ng/dL:

Urine Value	Divide by 1.3	BAC Value
0.03ng/dL	/ 1.3	= 0.023 BAC

Conversely, if you start with a BAC value, multiply that value by 1.3 and you will obtain the alcohol concentration in urine.

Question of the Month

Question: *My patient had a Positive urine drug screen for Cocaine. She is denying use and stating that she went to the dentist and was given Novacaine. Can Novacaine give a positive result for Cocaine?*

Answer: The answer in its simplest form is "no". There is no structural similarity between the compounds Novacaine and Cocaine. Both are used as analgesics and have 'caine' as part of the name, but there is no further connection beyond that. If the testing has been a screen only (immunoassay) a confirmation test is suggested. When performing a confirmation for Cocaine in urine, labs are not looking for Cocaine (the parent drug) but are looking for Benzoylecgonine, the metabolite of Cocaine use.