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The BOP Addiction Service Opioid Substitution Treatment (OST) - Serum Levels

Te Whatu Ora
Health New Zealand
Hauora a Toi Bay of Plenty

Methadone, when it's administered daily at a steady dose, should be present in the blood levels sufficient to maintain "normality" over a 24-hour period. That is, you shouldn't feel stoned or have withdrawal symptoms (abstinence syndrome) during that time.

However, sometimes people in opioid treatment complain of problems with a given dose of OST: 'My dose isn't holding me'; 'I get sleepy at work'; 'I wake up feeling like I'm hanging out'.

There is variation in how different people react to methadone and blood level measurements can be very useful when your response to your methadone isn't consistent (i.e., isn't what would normally be expected) with the dose you are receiving. Other reasons for serum level testing include:

- Clients in the stabilisation phase requesting an increase over 80mgs of methadone
- Clients in the maintenance phase requesting significant dose changes
- If there is a suspected dose interaction
- When looking at the need for and effectiveness of split dose
- Pregnancy (to check for changes in metabolism of methadone)
- When there's concern about the accuracy of reported methadone consumption.

These are examples of when you might get asked to do serum level test.

There are two types of serum methadone tests

1. A peak level measures the highest amount of methadone in your blood. Typically, the blood level reaches a high point, or 'peak', about 3-4 hours after taking your dose.
2. A trough level measures the lowest (daily) level of methadone in your blood. After the 3-4-hour peak, there's a gradual decline over the remainder of the 24-hour period to a low point or 'trough' level.

The methadone in your blood is measured in terms of nanograms per millilitre or ng/ml. This helps determine how much methadone is circulating in your system.

Just as there's variation in how different people might react to the same dose of methadone there is also variation in the amount of active methadone between two people who have the same serum level; one will be comfortable while the other is not – so it's not really useful to compare your results to someone else's because everyone is different.

The reason for serum testing

It is common for serum levels to vary considerably between two people. There are many causes of such inconsistency between your dose and your response to it. For example, you may be taking other medications that interact with your methadone, or there may be changes in the metabolising of your methadone.

The serum level testing process:

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1. For four consecutive days you need to consume your methadone in front of the pharmacist at approximately the same time each day. The dispensing pharmacist needs to be aware that you'll be arriving the same time for four consecutive days, and s/he will inform your case manager if you haven't already. If you do not turn up as expected as you may need to stop this test and repeat it the following week.
2. On the 5th day you go to the diagnostic lab before having your dose and have a blood sample taken. (If your veins are in a bad way making venous access difficult, capillary blood may be taken instead). You can then go to the pharmacy and have your dose.
3. If the medical officer wants to check your peak level as well, you'll need to return to the lab 3-4 hours after consuming your dose to have another blood sample taken.

It takes about a week for the results to come through, so you'll need to make an appointment to meet with the medical officer after this time to discuss the results.

GP Shared Care

If you're receiving your OST treatment from your GP and your doctor requests that you have a serum level test, you follow the same procedure. You'll need to ask your doctor what his/her usual arrangements are in terms of getting your results – they may only require you to phone them rather than making an appointment.

We do not do serum testing for Suboxone (buprenorphine/ naloxone).

References: San Diego Reference Library Reasons for Measuring Methadone Blood Levels
<http://www.sdrf.com/services/methadone-serum-r.html>

Te Whatu Ora Hauora a Toi Bay of Plenty has an active commitment to the Treaty of Waitangi and the improvement of Māori health.

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