

Misoprostol Detection in Blood

This document answers frequently asked questions related to claims that misoprostol was detected in blood or other body fluids

1. How can the presence of misoprostol be detected in blood?

It is not possible to detect misoprostol itself in blood plasma¹ even at five minutes after an oral dose.² Misoprostol is rapidly metabolized into misoprostol acid which can be detected using an “assay.” An assay is an investigative procedure to measure the presence or amount of a substance in a sample. A validated assay for misoprostol acid is highly reliable if it is done properly.

2. What documentation was provided to confirm the laboratory finding?

There should be a laboratory report from an accredited lab specifying the procedure used, timing of sampling and testing, and specific amount detected. There should be documentation of the validation of the misoprostol acid assay at that particular laboratory. If these details are unavailable, lab results should be assumed to be questionable.

3. Where was the blood tested?

In order to detect misoprostol acid in blood, a validated assay is necessary. There are very few validated assays and even fewer that are commercially available. Most of the facilities with the capacity to detect misoprostol acid in blood are in Europe and Asia, and the assays are expensive.

4. When was the blood sample taken?

The indicator for misoprostol, misoprostol acid, has an elimination half life of 20-40 minutes. This means that after 20-40 minutes the substance has lost half of its pharmacologic activity. Depending on the dose and route by which the drug is taken, the peak plasma level achieved and the amount of time the drug remains detectable in the body will differ slightly.³⁻⁶ Given available detection techniques, a 600mcg dose of oral misoprostol is no longer detectable after six hours.² Higher peak plasma levels are achieved via the sublingual route and a slower decline is observed by the vaginal route, but regardless of the route of administration the short half life requires a blood draw within a few hours to detect the misoprostol acid in plasma reliably.

5. How was the blood sample managed?

Blood samples for misoprostol acid analysis must be carefully managed. Validated methods of measuring misoprostol acid include immediate centrifugation and freezing in liquid nitrogen and then maintenance of the sample at -10 to -20 degrees Celsius.^{2,5-7} Any subsequent transport of the sample is done via a cooler with dry ice.^{6,8} If the sample is left at room temperature, misoprostol acid should be analyzed within four hours.²

6. What type of analysis was used?

There are three validated techniques for detecting misoprostol acid in blood, each with a different lower limit of detection. To analyze blood, a gas-chromatography mass-spectrometry machine or alternatively a liquid-chromatography mass-spectrometry machine is required. Radioimmunoassay has the potential to detect other metabolites, thus it is subject to non-specificity.⁵

7. Is there a claim of misoprostol found in other body fluids?

For any other body fluid (fetal blood, urine, breast milk) the same issues of the lack of availability of assays, short half life, and onerous testing procedures apply. However misoprostol acid levels would be even lower in these other fluids and would become undetectable sooner. Consequently, claims of misoprostol detected in most body fluids should be further questioned.

FOR ADDITIONAL INFORMATION PLEASE CONTACT: PUBINFO@GYNUITY.ORG

References:

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