

## Repeated analysis for positive urine pregnancy test sample: Does a refrigerated sample give reliable result ?

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- Background** : *Urine Pregnancy is currently an easily available diagnostic test. Sometimes, repeated analysis is requested to the laboratory for confirmation. Here, the authors performed this study to study the repeatability of positive urine samples kept in refrigerator.*
- Method** : *The authors collected 30 positive urine samples sent to the Urinalysis Unit for pregnancy test. All samples were kept in a refrigerator with temperature equaled to 4 degree Celsius waiting for repeated analysis. The author kept the record for the number of days that the repeatability of the urine pregnancy test could be run.*
- Results** : *From all 30 positive urine samples, 26 are classified as strong positive and 4 are classified as weakly positive. Considering repeated analysis, all 26 strong positive samples gave 100 % repeatability till the 30<sup>th</sup> day but all 4 weakly positives lost the repeatability, giving negative result on the 3<sup>rd</sup> day.*

**Discussion** : *This can imply that recheck for weakly positive urine pregnancy test is valid for a short time. Usually, a recheck for the result is requested on a weakly positive. Therefore, the authors recommended a follow-up test rather than a recheck for confirmation.*

**Keywords** : *Urine pregnancy test, Weakly positive.*

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ที่ให้ผลบวก: การเก็บในตู้เย็นมีประโยชน์หรือไม่ ?. จุฬาลงกรณ์เวชสาร 2550 ก.ย. - ต.ค.;  
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- ความเดิม** : การตรวจปัสสาวะทดสอบการตั้งครรภ์จัดเป็นการตรวจวินิจฉัยที่ใช้อย่าง  
กว้างขวางในปัจจุบัน การตรวจดังกล่าวมักมีการส่งซ้ำในกรณีสงสัยผลบวก ผู้  
นิพนธ์ได้ทำการศึกษาการตรวจซ้ำได้ของการตรวจปัสสาวะทดสอบการตั้งครรภ์  
ในกรณีที่เก็บไว้ในตู้เย็น
- วิธีการ** : ได้ทำการเก็บตัวอย่างการตรวจปัสสาวะที่ส่งตรวจยังหน่วยวิเคราะห์ปัสสาวะ  
เพื่อทดสอบการตั้งครรภ์ และได้ผลเป็นบวก 30 ราย นำไปแช่ตู้เย็นแล้วทำการ  
ทดสอบซ้ำ ผู้นิพนธ์ได้ทำการบันทึกจำนวนวันที่ตัวอย่างยังคงให้ผลซ้ำได้
- ผลการศึกษา** : ได้ทำการตรวจปัสสาวะ 30 ตัวอย่าง โดย 26 ตัวอย่างเป็นผลบวกอย่างแรงและ  
4 ตัวอย่างเป็นผลบวกอย่างอ่อน ทั้งนี้พบว่าตัวอย่างที่มีผลบวกอย่างแรงทั้งหมด  
ให้ผลบวกได้ตลอดเวลาการศึกษา 30 วัน ส่วนตัวอย่างที่มีผลบวกอย่างอ่อน  
ไม่สามารถให้ผลซ้ำได้ในวันที่ 3
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ทำได้ในช่วงสั้น ๆ ผู้นิพนธ์เสนอแนะให้ทำการติดตามผู้ป่วยมากกว่าการส่งตรวจ  
ซ้ำในทันที
- คำสำคัญ** : การตรวจปัสสาวะทดสอบการตั้งครรภ์, ผลบวกอย่างอ่อน

Urine Pregnancy is currently an easily available diagnostic test. Based on a basic immunological principle<sup>(1-3)</sup>, many urine pregnancy diagnostic tests were produced.<sup>(4)</sup> Since it is easy and inexpensive cost per test, the test is widely used nowadays. However, a number of the test are repeatedly requested at the medical laboratory everyday. Sometimes, repeated analysis is requested to the laboratory for confirmation.

Interestingly, there are only a few reports on the stability of refrigerated urine samples for urine pregnancy test.<sup>(5-6)</sup> Here, the authors performed this study to find out the repeatability of positive urine samples kept in such condition.

### Materials and Methods

This study is a laboratory-based trial. The authors collected 30 positive urine samples sent to the Urinalysis Unit, Division of Laboratory Medicine, King Chulalongkorn Memorial Hospital for urine pregnancy test. The number of the urine samples is the least accepted number for basic preliminary laboratory evaluation on the diagnostic test.

The samples were from the female subjects (average aged = 27.4 + 4.5 years) with history of missed menstruation and possibly in the first trimester of pregnancy who got urine pregnancy test for diagnosis of pregnancy. All samples were refrigerated with the temperature of 4 degree Celsius waiting for daily repeated analysis. Repeated analyses were performed using the same kind of urine pregnancy strip test. The authors kept the record for the number of days that the repeatability of the urine pregnancy tests, positive result still persists, could be derived. The longest period of refrigeration in this study was 30 days; after then the samples were no longer reliable.

### Results

From all 30 positive urine samples, 26 are classified as strong positive, and 4 weakly positive. Considering repeated analyses, all 26 strong positive samples gave 100 % repeatability until the 30<sup>th</sup> day but all the 4 weakly positive lost their repeatability, giving negative result on the 3<sup>rd</sup> day.

### Discussion

Urine pregnancy test in medical laboratory practice is a frequently used due to its convenience and effectiveness. The common indication for laboratory request is a missing menstruation period. Similar to general laboratory analysis, the stability of a urine sample is important factor for recheck of a pregnancy.

According to this work, the authors assess the possibility of the urine sample for repeated analyses. The authors found strong positive urine samples could maintain their positivity for 9 days but weakly positive urine sample could not last longer than the 3<sup>rd</sup> day. This can imply that a recheck of a weakly positive urine pregnancy test is plausible for a short time. Usually, a recheck is requested as a response to a weakly positive. Therefore, the authors recommend a follow-up test, rather than a recheck for confirmation.

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