

Weakly positive urine pregnancy diagnostic test rate: A study on laboratory incidence

Prapawadee Ekawong*

Viroj Wiwanitkit*

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Background : *Urine pregnancy test is currently an easily available diagnostic test. Here, the authors performed a study on laboratory-measured weakly positive pregnancy rates in a tertiary hospital in Thailand.*

Method : *The data from laboratory records of the female patients who got diagnostic urine pregnancy test at Division of Laboratory Medicine, King Chulalongkorn Memorial Hospital, Bangkok Thailand from June 2004 to August 2005 were reviewed.*

Results : *There were 3,326 laboratory records reviewed in this study. From the total 3,326 records, 19 were weakly positive, giving the incidence rate equals to 0.57 %.*

Discussion : *Less than 1 % of the analyses gave the weakly positive result. The clinical implication of these cases needed further studies to verify.*

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

Reprint request : Ekawong P. Department of Laboratory Medicine, Faculty of Medicine,
Chulalongkorn University, Bangkok 10330, Thailand.

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- ความเดิม** : การตรวจปัสสาวะทดสอบการตั้งครรภ์จัดเป็นการตรวจวินิจฉัยที่ใช้อย่างกว้างขวางในปัจจุบัน ผู้นิพนธ์ได้ทำการศึกษาอัตราการเกิดผลบวกอย่างอ่อนจากโรงพยาบาลระดับตติยภูมิแห่งหนึ่ง
- วิธีการ** : ได้ทำการทบทวนผลการตรวจปัสสาวะทดสอบการตั้งครรภ์ทางห้องปฏิบัติการจากฝ่ายเวชศาสตร์ชั้นสูงตร โรงพยาบาลจุฬาลงกรณ์ ระหว่าง มิถุนายน 2547 ถึง สิงหาคม 2548
- ผลการศึกษา** : ได้ทำการทบทวนรายงานการตรวจจำนวน 3,326 ราย พบผลบวกอย่างอ่อน 19 ราย (0.57 %)
- อภิปราย** : อัตราการเกิดผลบวกอย่างอ่อนจากการตรวจปัสสาวะทดสอบการตั้งครรภ์ทางห้องปฏิบัติการต่ำกว่าร้อยละ 1 ความสำคัญทางคลินิกของกรณีเหล่านี้ควรได้รับการศึกษาต่อไป
- คำสำคัญ** : การตรวจปัสสาวะทดสอบการตั้งครรภ์, ผลบวกอย่างอ่อน, อุบัติการณ์

Urine Pregnancy is currently an easily available diagnostic test. Based on a simple basic of immunological principle⁽¹⁻³⁾, many urine pregnancy diagnostic tests were produced.⁽⁴⁾ Due to the easily-to-use steps and inexpensive cost per test, it is widely used nowadays. For routine urine pregnancy strip test, three possible reported results include strong positive or positive, weakly positive and negative.

A weakly positive is usually a problematic to the physician in charge; it can be a good reason for repeated request for urine pregnancy test. Only a few recent studies estimated population pregnancy rates by objective, laboratory-based criteria.⁽⁵⁾ Here, the authors performed a study on laboratory-measured weakly positive rates in a tertiary hospital in Thailand.

Materials and Methods

Data from laboratory records of the all women who got diagnostic urine pregnancy test at Division of Laboratory Medicine, King Chulalongkorn Memorial Hospital, Bangkok Thailand from June 2004 to August 2005 were reviewed. The laboratory setting is the largest laboratory of the Thai Red Cross Society with accredited for ISO15189 Standard. The urine pregnancy test mentioned in this study was a one-step pregnancy test, rapid one-step membrane test for detection of HCG in urine.^(6,7) The result of each test noted in medical records were also reviewed and collected. Records that had no complete data were excluded. Descriptive statistic was carried out on the data where it was appropriate.

Results

There were 3,326 laboratory records reviewed in this study. From the total of 3,326 records, 19 were

weakly positive, giving the incidence equals to 0.57%.

Discussion

A simple and reliable indicator for pregnancy outcome will be clinically valuable for patient management and in counseling women whose pregnancies are results of subfertility treatment. Urine pregnancy test in medical laboratory practice is a frequently used test, due to its convenient and effectiveness. The common indication for laboratory request was a missed menstruation.

Since urine pregnancy strip test is an endocrine test based on immunochromatography principle, some limitations of the test strip due to the basic immunology concepts can be expected. The problems of low HCG in early pregnancy, and of possible prozone phenomena in case of high HCG as may occur in hydatidiform mole or in later pregnancy are reported in the literature.⁽⁸⁾ This problems can expect in any immunological based include direct agglutination latex particle test in the pregnancy report as well as our immunological test. In this study, the incidence of weakly positive result was calculated. Less than 1 % of the analysis give weakly positive result and there is no presented result on this topic in Thailand. Therefore, this study can be a good data and the clinical implication of these cases needed further studies to verify.

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Table 1. Monthly report of urine pregnancy test.

Month	Number of urine pregnancy test			
	Total	Weakly positive	Positive	Negative
June 04	282	2	31	249
July 04	273	4	28	241
August 04	293	2	31	260
September 04	184	1	21	162
October 04	222	1	43	178
November 04	225	0	21	204
December 04	149	0	25	124
January 05	170	0	25	145
February 05	176	2	21	153
March 05	229	0	15	214
April 05	168	1	17	150
May 05	254	2	39	213
June 05	247	2	20	225
July 05	174	0	9	165
August 05	280	2	29	249
	3,326	19	375	2,932

Table 2. Urine pregnancy test result classified by aged group.

Age	Urine pregnancy test		
	Weakly positive	Positive	Negative
16 – 20	2	10	293
21 – 25	7	85	683
26 – 30	6	197	840
31 – 35	3	78	658
36 – 40	1	5	352
41 – 45	-	-	83
46 - 50	-	-	23
	19	375	2,932

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