



TITLE: Beta Human Chorionic Gonadotropin Test for Detection of Early Pregnancy: Clinical Effectiveness, Cost-Effectiveness, and Guidelines

DATE: 15 April 2013

RESEARCH QUESTIONS

1. What is the evidence for the diagnostic accuracy of the beta human chorionic gonadotropin test for detecting early pregnancy prior to surgery or medical treatment?
2. What is the cost-effectiveness regarding the use of the beta human chorionic gonadotropin test prior to surgery, for detecting early pregnancy prior to surgery or medical treatment?
3. What are the evidence-based guidelines regarding the use of the beta human chorionic gonadotropin test prior to surgery, for detecting early pregnancy prior to surgery or medical treatment?

KEY MESSAGE

Two non-randomized studies and two evidence-based guidelines were identified regarding the use of the BhCG test prior to surgery, for detecting early pregnancy prior to surgery or medical treatment.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2013, Issue 3), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2008 and April 10, 2013. Internet links were provided, where available.

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RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, economic evaluations, and evidence-based guidelines.

Two non-randomized studies and two evidence-based guidelines were identified regarding the use of the beta human chorionic gonadotropin (BhCG) test prior to surgery, for detecting early pregnancy prior to surgery or medical treatment. No relevant health technology assessment reports, systematic reviews, meta-analyses, randomized controlled trials, or economic evaluations were identified. Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Minnerop MH, Garra G, Chohan JK, Troxell RM, Singer AJ. Patient history and physician suspicion accurately exclude pregnancy. *Am J Emerg Med.* 2011 Feb;29(2):212-5.
[PubMed: PM20825808](#)
2. Kahn RL, Stanton MA, Tong-Ngork S, Liguori GA, Edmonds CR, Levine DS. One-year experience with day-of-surgery pregnancy testing before elective orthopedic procedures. *Anesth Analg.* 2008 Apr;106(4):1127-31.
[PubMed: PM18349183](#)

Economic Evaluations

No literature identified.

Guidelines and Recommendations

3. Danielson D, Bjork K, Card R, Foreman J, Harper C, Roemer R, et al. Preoperative evaluation [Internet]. Bloomington (MN): Institute for Clinical Systems Improvement; 2012 Jul. [cited 2013 Apr 11]. Available from: https://www.icsi.org/_asset/7y87p4/Preop-Interactive0812b.pdf
See page 15: Pregnancy
4. ASGE Standards of Practice Committee, Levy MJ, Anderson MA, Baron TH, Banerjee S, Dornitz JA, et al. Position statement on routine laboratory testing before endoscopic procedures. *Gastrointest Endosc.* 2008 Nov;68(5):827-32.
Summary available from: <http://www.guideline.gov/content.aspx?id=14331>

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APPENDIX – FURTHER INFORMATION:

Guidelines and recommendations – unknown rigour

5. Merchant R, Chartrand D, Dain S, Dobson G, Kurrek M, Lagacé A, et al. Guidelines to the practice of anesthesia revised edition 2013. Can J Anaesth [Internet]. 2013 Jan [cited 2013 Apr 11];60(1):60-84. Available from:
http://www.cas.ca/English/Page/Files/97_Guidelines_2013.pdf
[PubMed: PM23264010](#)
See page 67
6. Preoperative anesthesia guidelines [Internet]. New Orleans (LA): Tulane Preoperative Medicine Clinic; 2010 Nov. [cited 2013 Apr 11]. Available from:
<http://tulane.edu/som/upload/100-491-Anesthes-Complete-2010.pdf>
See page 4: Pregnancy Test
7. AAGBI safety guideline. Pre-operative assessment and patient preparation: the role of the Anaesthetist [Internet]. London: The Association of Anaesthetists of Great Britain and Ireland; 2010 Jan. [cited 2013 Apr 11]. Available from:
<http://www.aagbi.org/sites/default/files/preop2010.pdf>
See page 22
8. Pre-operative assessment guidelines [Internet]. Cornwall, UK: Royal Cornwall Hospitals NHS; 2010 Dec. [cited 2013 Apr 11]. Available from:
<http://www.rcht.nhs.uk/DocumentsLibrary/RoyalCornwallHospitalsTrust/Clinical/Anaesthetics/PreOperativeAssessmentGuidelines.pdf>
See appendix 2

Surveys of Practice or Practice Audits

9. Wong LF, Wingfield M. Pre-operative testing for pregnancy in Dublin day surgery units. Ir J Med Sci. 2013 Jun;182(2):231-5.
[PubMed: PM23184505](#)
10. Saha S, Reddi D, Wylie S. "Could your patient be pregnant?" Detection of early pregnancy in the preoperative patient - closing the audit cycle: 1AP5-4. Eur J Anaesthesiol [Internet]. 2011 Jun [cited 2013 Apr 11];28:18. Available from:
http://journals.lww.com/ejanaesthesiology/Fulltext/2011/06001/ Could_your_patient_be_pregnant_Detection_of.56.aspx

Non-randomized studies – blood versus urine testing

11. Fromm C, Likourezos A, Haines L, Khan AN, Williams J, Berezow J. Substituting whole blood for urine in a bedside pregnancy test. J Emerg Med. 2012 Sep;43(3):478-82.
[PubMed: PM21875776](#)

Additional References

12. Homi HM, Ahmed Z. Preoperative pregnancy testing: to test or not to test? (An Anesthesiologist's dilemma). SPA News [Internet]. 2012 [cited 2013 Apr 11];25(1). Available from: <http://www.pedsanesthesia.org/newsletters/2012winter/pregnancy.html>
13. Korpman TZ. Routine preoperative laboratory and diagnostic screening. CSA Bulletin [Internet]. 2012 [cited 2013 Apr 11];77-80. Available from: http://www.csahq.org/pdf/bulletin/preop_61_2.pdf
14. Lamont T, Coates T, Mathew D, Scarpello J, Slater A. Checking for pregnancy before surgery: summary of a safety report from the National Patient Safety Agency. BMJ. 2010;341:c3402.
[PubMed: PM20605880](#)
15. National Patient Safety Agency. Rapid response report: checking pregnancy before surgery [Internet]. London: NHS; 2010 Apr 28. Report No.: NPSA/2010/RRR011. [cited 2013 Apr 11]. Available from: <http://www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=73883&type=full&servicetype=Attachment>
16. National Patient Safety Agency. Rapid response report: checking pregnancy before surgery. Supporting information [Internet]. London: NHS; 2010 Apr 28. Report No.: NPSA/2010/RRR011. [cited 2013 Apr 11]. Available from: <http://www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=73884&type=full&servicetype=Attachment>
17. Hepner DL. The role of testing in the preoperative evaluation. Cleve Clin J Med [Internet]. 2009 Nov [cited 2013 Apr 11];76(Suppl 4):s22-s27. Available from: http://www.ccm.org/content/76/Suppl_4/S22.full
18. Kahn RL, Liguori GA, Stanton MA, Levine DS, Edmonds CR. Routine pregnancy testing before elective anesthesia is not an American Society of Anesthesiologists standard. Anesth Analg [Internet]. 2009 May [cited 2013 Apr 11];108(5). Available from: <http://www.anesthesia-analgia.org/content/108/5/1716.1.full>