TITLE: Measurement of Blood Glucose and Blood Pressure for Newborns: Clinical Evidence and Guidelines

DATE: 08 December 2011

RESEARCH QUESTIONS

1. What is the clinical evidence regarding the measurement of blood glucose at birth for all newborns?

2. What is the clinical evidence regarding the measurement of blood pressure at birth for all newborns?

3. What are the evidence-based guidelines regarding the measurement of blood glucose or blood pressure at birth for all newborns?

KEY MESSAGE:

The evidence suggests that measurement of blood glucose at birth of asymptomatic, appropriate-for-gestational-age, term infants is not recommended. Evidence-based guidelines define a population of “high risk” newborns who should have their blood glucose measured at birth.

METHODS:

A focused search (with main concepts appearing in title or major subject heading) was conducted on key resources including PubMed, EBSCO CINAHL, The Cochrane Library (2011, Issue 11), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and abbreviated list of 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, 2006 and November 25, 2011. Internet links were provided, where available.
The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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, and evidence-based guidelines.

Two non-randomized studies and three evidence-based guidelines regarding the measurement of blood glucose at birth for all newborns were identified. No relevant literature was found regarding the measurement of blood pressure at birth for all newborns. Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS:

One non-randomized study\(^1\) found that screening for maternal/infant risk factors and infant signs or symptoms of hypoglycemia could be used to decrease the number of infants who need peripheral blood glucose testing within 2 hours of birth. Another non-randomized study\(^2\) found that screening asymptomatic, healthy term and near-term newborns for blood glucose levels in the first hour after birth is unnecessary.

Three evidence-based guidelines\(^3\)\(^-\)\(^5\) were identified regarding the measurement of blood glucose at birth for all newborns. Two guidelines\(^3\)\(^-\)\(^4\) state that routine measurement of blood glucose at birth of asymptomatic, appropriate-for-gestational-age, term infants is not recommended. Three guidelines\(^3\)\(^-\)\(^5\) define a population of “high risk” newborns who should have their blood glucose measured at birth. This group includes (but is not limited to): infants of diabetic mothers, preterm infants less than 37 weeks, small for gestational age infants (weighing at less than the 10th percentile) and large for gestational age infants (weighing at higher than the 90th percentile). Links to the full guideline documents\(^3\)\(^-\)\(^5\) are provided in the reference list for access to more detailed and comprehensive information.

No relevant literature was found regarding the measurement of blood pressure at birth for all newborns; therefore, no summary is presented on this topic.
REFERENCES SUMMARIZED:

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials
No literature identified.

Non-Randomized Studies


Guidelines and Recommendations


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APPENDIX – FURTHER INFORMATION:

Guidelines and recommendations- methodology not specified


Review Articles

