No. 325, June 2015

Guidelines for the Management of a Pregnant Trauma Patient

This clinical practice guideline has been prepared by the Maternal Fetal Medicine Committee, reviewed by the Clinical Practice – Obstetrics, Medico-Legal, and Family Physician Advisory Committees, and approved by Executive and Board of the Society of Obstetricians and Gynaecologists of Canada

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Disclosure statements have been received from all contributors.

J Obstet Gynaecol Can 2015;37(6):553–571

Key words: Abruption, electrical, fall, fetal, injury, maternal, MVC, penetrating, perimortem, pregnancy.

Abstract

Objective: Physical trauma affects 1 in 12 pregnant women and has a major impact on maternal mortality and morbidity and on pregnancy outcome. A multidisciplinary approach is warranted to optimize outcome for both the mother and her fetus. The aim of this document is to provide the obstetric care provider with an evidence-based systematic approach to the pregnant trauma patient.

Outcomes: Significant health and economic outcomes considered in comparing alternative practices.

Evidence: Published literature was retrieved through searches of Medline, CINAHL, and The Cochrane Library from October 2007 to September 2013 using appropriate controlled vocabulary (e.g., pregnancy, Cesarean section, hypotension, domestic violence, shock) and key words (e.g., trauma, perimortem Cesarean, Kleihauer-Betke, supine hypotension, electrical shock). Results were restricted to systematic reviews, randomized control trials/controlled clinical trials, and observational studies published in English between January 1968 and September 2013. Searches were updated on a regular basis and incorporated in the guideline to February 2014.

Grey (unpublished) literature was identified through searching the websites of health technology assessment and health technology-related agencies, clinical practice guideline collections, clinical trial registries, and national and international medical specialty societies.

Values: The quality of evidence in this document was rated using the criteria described in the Report of the Canadian Task Force on Preventive Health Care (Table 1).

Benefits, harms, and costs: This guideline is expected to facilitate optimal and uniform care for pregnancies complicated by trauma.

SUMMARY STATEMENT

Specific traumatic injuries

At this time, there is insufficient evidence to support the practice of disabling air bags for pregnant women. (III)

RECOMMENDATIONS

Primary survey

1. Every female of reproductive age with significant injuries should be considered pregnant until proven otherwise by a definitive pregnancy test or ultrasound scan. (III-C)

Table 1. Key to evidence statements and grading of recommendations, using the ranking of the Canadian Task Force on Preventive Health Care

Quality of evidence assessment*	Classification of recommendations†
I: Evidence obtained from at least one properly randomized controlled trial	A. There is good evidence to recommend the clinical preventive action
II-1: Evidence from well-designed controlled trials without randomization	B. There is fair evidence to recommend the clinical preventive action
II-2: Evidence from well-designed cohort (prospective or retrospective) or case–control studies, preferably from more than one centre or research group	C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making
II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category	D. There is fair evidence to recommend against the clinical preventive action
	E. There is good evidence to recommend against the clinical preventive action
III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees	L. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

*The quality of evidence reported in here has been adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.[133]

†Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.[133]

2. A nasogastric tube should be inserted in a semiconscious or unconscious injured pregnant woman to prevent aspiration of acidic gastric content. (III-C)
3. Oxygen supplementation should be given to maintain maternal oxygen saturation > 95% to ensure adequate fetal oxygenation. (II-1B)
4. If needed, a thoracostomy tube should be inserted in an injured pregnant woman 1 or 2 intercostal spaces higher than usual. (III-C)
5. Two large bore (14 to 16 gauge) intravenous lines should be placed in a seriously injured pregnant woman. (III-C)
6. Because of their adverse effect on uteroplacental perfusion, vasopressors in pregnant women should be used only for intractable hypotension that is unresponsive to fluid resuscitation. (II-3B)
7. After mid-pregnancy, the gravid uterus should be moved off the inferior vena cava to increase venous return and cardiac output in the acutely injured pregnant woman. This may be achieved by manual displacement of the uterus or left lateral tilt. Care should be taken to secure the spinal cord when using left lateral tilt. (II-1B)
8. To avoid rhesus D (Rh) alloimmunization in Rh-negative mothers, O-negative blood should be transfused when needed until cross-matched blood becomes available. (I-A)
9. The abdominal portion of military anti-shock trousers should not be inflated on a pregnant woman because this may reduce placental perfusion. (II-3B)

Transfer to health care facility

10. Transfer or transport to a maternity facility (triage of a labour and delivery unit) is advocated when injuries are neither life- nor limb-threatening and the fetus is viable (≥ 23 weeks), and to the emergency room when the fetus is under 23 weeks' gestational age or considered to be non-viable. When the injury is major, the patient should be transferred or transported to the trauma unit or emergency room, regardless of gestational age. (III-B)
11. When the severity of injury is undetermined or when the gestational age is uncertain, the patient should be evaluated in the trauma unit or emergency room to rule out major injuries. (III-C)

Evaluation of a pregnant trauma patient in the emergency room

12. In cases of major trauma, the assessment, stabilization, and care of the pregnant women is the first priority; then, if the fetus is viable (≥ 23 weeks), fetal heart rate auscultation and fetal monitoring can be initiated and an obstetrical consultation obtained as soon as feasible. (II-3B)
13. In pregnant women with a viable fetus (≥ 23 weeks) and suspected uterine contractions, placental abruption, or traumatic uterine rupture, urgent obstetrical consultation is recommended. (II-3B)
14. In cases of vaginal bleeding at or after 23 weeks, speculum or digital vaginal examination should be deferred until placenta previa is excluded by a prior or current ultrasound scan. (III-C)

Adjunctive tests for maternal assessment

15. Radiographic studies indicated for maternal evaluation including abdominal computed tomography should not be deferred or delayed due to concerns regarding fetal exposure to radiation. (II-2B)
16. Use of gadolinium-based contrast agents can be considered when maternal benefit outweighs potential fetal risks. (III-C)
17. In addition to the routine blood tests, a pregnant trauma patient should have a coagulation panel including fibrinogen. (III-C)
18. Focused abdominal sonography for trauma should be considered for detection of intraperitoneal bleeding in pregnant trauma patients. (II-3B)
19. Abdominal computed tomography may be considered as an alternative to diagnostic peritoneal lavage or open lavage when intra-abdominal bleeding is suspected. (III-C)

Fetal assessment

20. All pregnant trauma patients with a viable pregnancy (≥ 23 weeks) should undergo electronic fetal monitoring for at least 4 hours. (II-3B)