

Trauma in Pregnancy

Hubble trauma textbook:
OB chapter

EMC 420: Maternal & Child Emergency Care
D. Trigg, MD

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Objectives

Overall objectives for trauma in the pregnant patient the next several lectures:

- Epidemiology and etiology of injury
- Anatomic and physiologic changes
- Pathophysiology
- Assessment
- Treatment
 - Field
 - Emergency department considerations

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Objectives , cont.

Upon completion of these topics, you will be able to:

- Compare and contrast the:
 - Current and past epidemiology of pregnancy-related mortality and morbidity.
 - Anatomy and physiology of pregnant nonpregnant patients.
- Describe how differences in the anatomy and physiology are relevant to assessment.
- Explain the potential pitfalls of assessing the pregnant trauma patient.

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Objectives

- Discuss how the differences in anatomy and physiology affect prehospital treatment of the pregnant trauma patient.
- Identify factors which most threaten fetal survival.
- Discuss differences in pathophysiology of minor trauma of the pregnant trauma patient
 - *Requires in-hospital assessment and*
 - *Adverse outcomes which may occur.*

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Objectives

- Discuss how differences in prehospital assessment and treatment of the pregnant trauma patient will affect the in-hospital treatment.

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Introduction

- Serious “hidden injuries”
 - Less obvious alterations of anatomy and physiology during pregnancy, the placenta, and the physiology of the fetus.
- Possible pitfalls or omissions in the care of the pregnant trauma patient
- Goal is to “expose” the critical, hidden information that is essential to the management of the pregnant patient.

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Issues in Management of Trauma in Pregnancy

- Which injuries are more common during pregnancy which are severe?
- In multisystem major trauma, how is fetal survival most affected?
- Which medications, usually safe in pregnancy, are contraindicated?
- Can the fetus be at risk if the mother is perfectly stable?

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Issues in Management of Trauma in Pregnancy

- “I don’t wear my seat belt because I don’t want to hurt my baby”
- What are the best ways to minimize fetal injury?
- Is it ever critical that a paramedic be able to estimate fetal age?
- Prehospital management of traumatic arrest in the pregnant patient?

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Essentials of Treatment for Pregnant Patients

- Orderly and rigorous attention to the ABC’s
- Fundamentally the same as for all trauma patients
- Effective stabilizing interventions in the pregnant trauma patient
 - Protection of both mother and fetus
- After initial stabilizing interventions
 - Consider hidden or subtle factors which affect assessment and treatment

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Epidemiology and Etiology of Injury

- *Obstetric*-related deaths have declined
- *Trauma*-related maternal deaths have **not** declined
- Shift in the leading causes of maternal deaths (in much the same way as in the pediatric population)
- Accidents and assaults have replaced the formally common causes of death.

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Maternal Mortality

- Obstetric-related
 - Infection,
 - Hemorrhage and
 - Toxemia.
- Trauma
- See Figure 25 - 1.

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Trauma

- Leading urban cause of death during pregnancy
 - Now twice as likely to die from trauma than from : all direct obstetric-related causes of deaths *combined*!
- Changes in the last fifty years
 - Major life-threatening trauma
 - Only a small % of all maternal injuries
 - The most common causes of trauma (major and minor) during pregnancy:
 - Domestic violence and
 - Motor vehicle accidents ^{2,5,6}

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Prevalence of Maternal Trauma

- EMS/ prehospital prevalence not well documented
- Frequency and patterns of injuries resemble the nonpregnant, age-matched, population ^{2,3,6}
- Estimate: 7 to 23 percent of all pregnancies ^{4,5}

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Prevalence of Maternal Trauma

- Prevalence studies vary widely
- Disparity due to differences in
 - Research design
 - Inconsistencies in method of reporting
- Domestic violence
 - Public health problem of epidemic proportions ⁸
 - DV studies - well documented :
 - We fail to report
 - We fail to even recognize ^{5,9-11}

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Prevalence of Maternal Trauma

The practicing paramedic will probably encounter

- Maternal trauma due to domestic violence
 - Much more than typically predicted in past literature

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Determinants of Maternal Survival of Trauma

- Critical force
- Presence of shock, and
- Presence of head, chest, abdomen, pelvic trauma

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Determinants of Fetal Survival

In pregnant patients with major trauma

- Fetal survival correlates most with the severity of maternal injury ^{4,12}
- Correlations of severity of maternal injury with fetal survival:
 - 100 percent in maternal death
 - 80 percent in maternal shock, and
 - 50 percent in other maternal serious injuries ¹⁸
 - up to 25 percent of minor trauma ^{14, 15, 16}

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Abruptio Placentae

- More fetal mortality than any other trauma
 - Except for the death of the mother ⁶
- May result from seemingly trivial maternal injury
- The greatest **number** of pregnancy losses are due to minor injuries ¹⁸
(see table 25-2)

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Summary

We have begun our discussion of trauma in pregnancy with:

- Epidemiology and etiology of injury
- Some of the potential pitfalls of assessing the pregnant trauma patient , e.g.,
 - Missing DV
 - Greatest number of pregnancy losses are due to:
 - “minor” injuries
 - Abruption placentae

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