Traveling While Pregnant
Case Presentations
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• THE PREGNANT TRAVELER
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Obstetricians Suffer from Travel Panic!

Non-obstetricians suffer from Pregnancy Panic!

Case #1
• 24 year old physician’s wife (a nurse) planning a 2-week trip to India to visit her husband’s missionary parents. Will be 26 weeks pregnant with first pregnancy.

Case #1
• Eating in local homes and staying with husband’s family in American-style housing. Traveling extensively by train. Staying near a mission hospital run by Americans.

Early Considerations
• Is it a normal, healthy pregnancy?
• Airline regulations
• Insurance
  – Medical
  – Medevac
**Practical Considerations**
- Patient education
- Comfort items
- Medical kit

**Patient Education**
- Thromboembolism
- Vomiting & diarrhea
- Urinary symptoms
- Toxemia
- Bleeding
- Contractions
- Rupture of membranes
- Fever

**Comfort Matters**
- Edema
- Bloating
- Hemorrhoids
- Urinary frequency
- Nausea
- Headache

**Medical Kit**
- Antinausea
- Analgesic
- Oral Rehydration Salts
- Antibiotics
- Vaginitis treatment
- Vitamins

**Symptomatic Remedies**
- Anti-emetics
  - Ginger
  - Preggie Pops
  - Pyridoxine
  - Antihistamines
    - Promethazine
    - Meclizine
- Analgesics
  - Acetaminophen
  - Narcotics
  - Antidiarrheals
  - Loperamide
  - Avoid bismuth subsalicylate

**During the Trip**
- Diarrhea and dehydration
- Heat & humidity
- Respiratory infections
- Malaria prophylaxis?
  - Mosquito measures – DEET, screens, airconditioning, clothes, permethrin
- Foreign medical care
Diarrheal Illness

- Decreased acidity & motility
- Dehydration & ketosis
- Premature labor
- Shock

Diarrheal Illness

- Treatment
  - Oral Hydration
  - Antimotility agents?
  - Antibiotics?
  - Parenteral fluids?

Heat and Humidity

- Heat
  - Heat stress stimulates the release of maternal antidiuretic hormone or oxytocin, which reduces uterine blood flow and causes a shift in fetal metabolism from anabolic to catabolic pathways.
    - Dreiling CE, Carman FS, Brown DE
    - We conclude that the heat-dissipating ability is slightly enhanced during late pregnancy.

Mosquito Protective Measures

- Screens & bednets
- Clothing
- Repellents
- Permethrin
- Sprays & coils

Insect Repellents & Insecticides

- DEET
  - Crosses the placenta
  - Accumulates in fat & brain
  - Dose-dependent toxicity
  - Safe in 2nd & 3rd trimesters
- Cosmetics
- Permethrin
- Piperdine

Respiratory Illness

- Prevention
  - Flu vaccine
  - Pneumococcal vaccine
- Treatment
  - Decongestants
    - Inhalers
    - Antibiotics
Case #2
- 28 y.o. physician (family practice resident) has been planning for 2 years to attend a family reunion with in-laws in Cusco & Machu Picchu x 1 week then Amazon for 1 week.

• Finds out 6 weeks before the trip that she is pregnant. Will be 12 weeks pregnant at the time of the trip.

Basic Care
- Establish the normalcy of the pregnancy
- Check immune status
  - Hepatitis B, Rubella
- Arrange for care at destination
  - Minor problems far from home (spotting, UTI)
  - Copy of medical record

Accommodations
- Accompanying persons
- Upgrade airline seating
- Upgrade hotel
- Reduce itinerary intensity

Medical Preparation
- Altitude
  - HA & vomiting = morning sickness or altitude sickness?
- Malaria
- YF vaccine
  - Minimizing exposures
  - Giving the vaccine

Altitude
- Short exposure at moderate altitude probably OK
  - Acetazolamide (Diamox) not recommended
  - Beware with anemia, IUGR, SCD
Malaria

• Mosquitoes prefer pregnant women
  – Due to increased skin temperature?
  – Due to increased CO2 production?

Malaria Morbidity in Pregnancy

• Mother
  – Higher level of parasitemia
  – Cerebral malaria
  – Anemia
  – Hypoglycemia
  – Relapse

• Infant
  – LBW
  – Prematurity
  – Abruption
  – Thrombocytopenia
  – Seizures
  – Splenic rupture

Medications & Vaccinations

• The principle of avoidance
  – Can the trip be delayed?
  – Can the trip be modified?
  – Are there other forms of protection?

Medications & Vaccinations

• The Principle of COMPARATIVE RISK
  – If the disease would be more harmful than the medication, GIVE THE MEDICINE.

Vaccination

• May cause febrile reaction
• Oral vaccines and intestinal transit
• Lack of immune response
• Consider a waiver
• No vaccine has known fetal teratogenic effects.
  • ACOG Committee Opinion No. 282, January 2003

General Considerations

• May cause febrile reaction
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• No vaccine has known fetal teratogenic effects.
  • ACOG Committee Opinion No. 282, January 2003
Hepatitis A

• Risk of abruption & prematurity

• Prevention
  – Immune globulin?
    • Ross L. Acta Paediatr 1995 Dec;84(12):1436-7
  – Vaccine

Hepatitis B

• Maternal - fetal transmission
• A lifelong disease

Case #3

• 32 y.o. G3P2 now at 32 weeks gestation living in a remote city in China. Has an ultrasound and is told that the infant is very small for dates and has very little fluid.

• It is felt to be an emergency and she is advised to have a Cesarean the next day. She e-mails ultrasound photos that confirm the findings mentioned.

Problems

• Airline will not allow travel after 28 weeks
• Medevac company has no neonatal team
• Risk of hypoxemia
• Unsafe blood supplies
• Lack of neonatal care locally

Answers

• Beijing hospital has fully equipped neonatal unit with U.S. board certified perinatologist
• Travel by train; not airplane
• We get baby pictures 3 days later
Contraindications to Medical Evacuation in Pregnancy

- Bleeding - Vaginal or ectopic
- A patient in labor or with ruptured membranes
- Unstable pre-eclampsia
- Alternatives
  - Fly in the blood
  - Fly in the necessary medical personnel

Case #4

- 23 y.o woman has been preparing for 2 years for missionary service in Africa. Is the daughter of a chiropractor who did not believe in vaccinations. Has never had any vaccinations.

Case #4

- She and her husband have been assigned to do relief work in Darfur. Now finds out that she is pregnant. Will be 12 weeks pregnant at time of departure.

Discussion

- Live virus vaccines in pregnancy
- Expatriate prenatal care & delivery plans

Relative Contraindications to Travel

- Travel only to areas with good facilities
- Obstetrical Conditions
  - Multiple gestation
  - Malpresentation
  - Hyperemesis
  - Fetal growth restriction

Relative Contraindications to Travel

- Medical Conditions
  - Diabetes
  - Hypertension
  - Anemia
  - Seizure disorder
  - Heart disease
  - Bowel disease
  - Thromboembolic disease
  - Uncontrolled lung disease
  - Liver disease
  - Psychiatric disorder
### Air Travel
- Airline regulations
- Altitude = 1500-2500 m
- Cosmic Radiation
- DVT
- Edema
- Abdominal distension

### Cruise Travel
- Cruise line restrictions
- Motion sickness
- Falls
- Lack of facilities
- Respiratory & GI infection

### Banned Activities
- Scuba diving
- Water skiing
- Horseback riding
- Motorcycles

### Trauma
- Accidents
  - Loss of balance
  - Lack of coordination
  - > 50% of fetal losses occur with "insignificant" trauma
- Increased blood loss.
- Delay of care
  - Common cause of fetal death is death of the mother.

### Medical Assistance & Evacuation
- Agencies and their restrictions
  - Use a qualified agency
  - Use a qualified team
- Make arrangements prior to travel

### Conditions that May Require Assistance
- Trauma
- Incomplete abortion
- Ectopic pregnancy
- Premature labor
- Rupture of membranes
- Bleeding
- Toxemia
- Medical illness
Precautions with Medical Evacuation
- Be prepared for hemorrhage or delivery
- Avoid digital exams
- Position to avoid excessive G forces
- Transport patient on her side
- Consider transporting qualified help to the patient rather than vice versa

Information in Obstetrics
- Not controlled studies
- But attentive observation
- Requires a balance between caution and chutzpah

Pregnancy and Travel
- Not a contraindication to travel
- But a reason for special caution

Pre-travel Preparations

Obstetrical Preparation
- Establish EDC
- Normalcy of the pregnancy
  - Ultrasound
- Blood type
- Immune status
  - Rubella, varicella, polio, etc.
  - TORCH
  - Hepatitis

Paperwork
- “Rules of the Day”
  - Airlines
  - Cruise lines
- Documentation
  - Travel documents
  - Physician letter
  - Prenatal record
  - Letter from partner
Problem Prevention & Treatment

Crime & Security
- Terrorism
- Street crime
- Sexual assault

“No – No’s”
- Loss of inhibitions
  - Business pressures
- Alcohol
- Drugs
- New sexual partner

Diarrheal Illness
- Prevention
  - Water
  - Food
  - Hygiene
  - ? Cholera vaccine

Parasitic Diseases
- Intestinal parasites
  - Rarely severe enough to require treatment
  - Self-treatment to be discouraged
  - Amebiasis
  - Giardiasis

Parasitic Diseases
- Other parasites
  - Filariasis
  - Trypanosomiasis
  - Schistosomiasis
- May worsen in pregnancy
  - e.g. Hydatid disease
  - de Silva NR. Lancet. 3-Apr-1999; 353(9159): 1145-9
Hepatitis E

- Fecal-oral transmission
  - Mostly water
- Case fatality rate 15-25%
- Distribution
  - India, China, SE Asia
  - Independent states
  - N & W Africa
  - Mexico

Recommended Vaccines

- Tetanus/diphtheria
- Influenza
- Hepatitis A
- Hepatitis B
- Typhim Vi
- Pneumococcus
- eIPV

“Contraindicated” Vaccines

- Live Viruses
  - Mumps, measles, rubella
  - Varicella
  - Yellow fever
- Those apt to cause severe reactions
  - Japanese encephalitis
  - Oral typhoid

Medications

- Use with caution
  - Fluoroquinolones
  - Clarithromycin
  - Sulfa
  - Metronidazole
  - Itraconazole
  - Fluconazole
- Avoid
  - Tetracyclines

Anti-infectives

- Use freely
  - Penicillins
  - Cefalosporins
  - Erythromycin
  - Azithromycin
  - Nitrofurantoin
  - Nystatin

Modes of Travel