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2018 LLSA Article Review

Gregory Gafni-Pappas, DO

Pelvic Inflammatory Disease

Background

What’s the problem?

Long Term Reproductive Disability
including infertility, risk for ectopic pregnancy and chronic pelvic pain

Pathogens

85% Cervical and Bacterial Vaginosis

The Articles

Pelvic Inflammatory Disease

Shared Decision-making

Spontaneous Intracerebral Hemorrhage

Venous Thromboembolism in Pregnancy

Table 1. Clinical Classification of Pelvic Inflammatory Disease and Likely Microbial Cause.

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Subclinical may be twice as common as acute with same outcomes

- C. trachomatis and N. gonorrhoeae
- Mycobacterium tuberculosis and azotobacter species

Percentage that progress to PID

- Chlamydia: About 15%
- Gonorrhea: More than 15%
- Bacterial Vaginosis: Multiple bacteria found in upper genital tract may work together with Chlamydia and Gonorrhea
- HIV: Increases risk of TOA

Classic Symptoms of Acute PID

- Severe lower abdominal or pelvic pain
-Shortly after menses
- Vaginal discharge
- Intermenstrual or post-coital bleeding
- Dyspareunia and Dysuria

Fitz-Hugh Curtis

Subclinical PID

- Infection and Inflammation upper genital tract
- Asymptomatic
- Tubal-factor Infertility
- Of women found to have tubal-factor infertility, 60% had some visit to doctor for abdominal pain

Low threshold to test and diagnose

Physical Exam for Acute PID

- Cervical motion tenderness
- Adnexal tenderness
- Cervical mucopus, cervical friability, or increased white cells in vaginal secretions
- Pelvic tenderness of any kind has 95% sensitivity but poor specificity
What is the Gold Standard for Diagnosis?

Other Tests

Treatment

Table 2. First-Line Antimicrobial Treatment Recommended by the Centers for Disease Control and Prevention (CDC) for Pelvic Inflammatory Disease

<table>
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<th>Outpatient regimen for mild-to-moderate pelvic inflammatory disease</th>
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<tr>
<td>Doxycycline (100 mg orally twice daily) for 7 days, with or without metronidazole (500 mg orally twice daily for 7 days), plus one of the following:</td>
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<tr>
<td>Cefuroxime (250 mg intramuscularly in a single dose)</td>
</tr>
<tr>
<td>Ceftriaxone (1 g intramuscularly) with probenecid (1 g orally) concurrently in a single dose</td>
</tr>
<tr>
<td>Other parenteral third-generation cephalosporins (cefotaxime or ceftriaxone)</td>
</tr>
<tr>
<td>Inpatient regimen for moderate-to-severe pelvic inflammatory disease with or without -tube-insertion abscesses</td>
</tr>
<tr>
<td>One of the following:</td>
</tr>
<tr>
<td>Cefotaxim (1 g intramuscularly every 12 h) plus doxycycline (100 mg orally or intramuscularly every 12 h)</td>
</tr>
<tr>
<td>Ceftriaxone (1 g intravenously every 6 h) plus doxycycline (100 mg orally or intramuscularly every 12 h)</td>
</tr>
<tr>
<td>Clindamycin (900 mg intravenously every 8 h) plus gentamicin (1 to 5 mg per kilogram of body weight intravenously once daily)</td>
</tr>
</tbody>
</table>

When to hospitalize?

- Pregnancy
- Must rule out other diagnoses (appy, etc.)
- Severe illness or unable to take PO
- TOA

To take out the IUD or not — that is the question

What do you think?

NO!

Prevention

Why?

Because complications of infertility, ectopic pregnancy, and chronic abdominal pain are real and high in patients with PID
Prevention

- Screening for Chlamydia can reduce change of PID by 30-50% over a year
- Screen women under 25 and those at high risk
- Sex education, use of condoms, and provision of condoms are mainstay of STI prevention
- Prompt evaluation and treatment of male sex partners is crucial – consider providing script to patient for partner

Future research – Prevention key

- Non-invasive test to confirm upper genital tract infection (biomarkers and imaging)
- Study other organisms of PID like M. genitalium
- Inexpensive POC testing for Chlamydia and Gonorrhea needed in low resource settings
- Vaccines for Chlamydia and Gonorrhea

Shared Decision Making

8 Characteristics that constitute quality and safe health care – PER PATIENTS

- Respect for patient’s values, preferences, and expressed needs.

8 Characteristics that constitute quality and safe health care – PER PATIENTS

- Coordination and integration of care.

“Nothing about me without me”

RESPECT FOR HUMAN DIGNITY IN THE CONTEXT OF MEDICAL DECISION MAKING
<table>
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<tr>
<td>1. Information, communication, and education.</td>
</tr>
<tr>
<td>2. Physical comfort, especially optimal pain management.</td>
</tr>
<tr>
<td>3. Emotional support and alleviation of fear and anxiety.</td>
</tr>
<tr>
<td>4. Involvement of friends and family, where appropriate.</td>
</tr>
<tr>
<td>5. Continuity of care, including care transitions.</td>
</tr>
<tr>
<td>6. Timely access to care.</td>
</tr>
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</table>

8 Characteristics that constitute quality and safe health care – PER PATIENTS
Patient engagement

- Benefit from involvement in medical decision making
- Chest Pain Choice trial showed increased patient engagement, decreased observation admissions, and decreased rate of stress testing within 30 days

Charles et. al. Model

- Paternalistic, Shared, and Informed
- Stages
  - Information Exchange
  - Deliberation
  - Choice

Paternalistic

- Information exchange is one-way from Physician
- Limited to biomedical information
- Physicians deliberate and Physicians decide

Assumes there is one best option – but we know this is not always true

Informed Model

- One-way but this time from Patient
- Also largely biomedical information

Shared Decision Making Model

- Two-way transfer of information
- Deliberation between physician and patient
- Takes into account values and other information besides just biomedical

Spectrum

- As physicians we use all models at different times
- Initial workup usually paternalistic for diagnostic purposes
- Then we inform the patient and at times the patient makes the decision, or most often there is deliberation
Case 1 - PECARN

- 7 year old
- Fell from monkey bars 3 hours ago
- Struck head with LOC for 30 seconds
- Vomited 1 hour later
- No major external signs of trauma and child is mildly tired

Case 2 – I want to leave

- 54 year old male
- Palpitations and “no energy” starting 9pm last night
- Note from Cards says patient was supposed to double his sotalol if this happened – he didn’t
- Afib with RVR
- Workup negative, HR controlled, talks with Cards and says to start on anticoagulation and place in O8V and they will see patient tomorrow, does not speak with patient about plan

Case 3

- 83 year old female with advanced dementia
- Fell out of wheelchair
- Did not lose consciousness, and no preceding symptoms
- Right leg shortened and externally rotated
- Tell daughter and she immediately begins crying stating her mother would not want to be on a life-support machine so she did not want her to have surgery

Conclusion

- Many factors that influence degree to which physicians engage patients in SDM
- Today’s world expects autonomy and a patient-centered environment
- My opinion – offloads some responsibility to the patient and allows more understanding in the process. Perhaps can also lessen litigation.

Spontaneous Intracerebral Hemorrhage

- Intracerebral hemorrhage has significant morbidity and mortality
- Evidence shows smaller hemorrhages are survivable with good care
- Goals of article – update on AHA/ASA guidelines and to give an evidence-based framework for care

Background
**Aggressive Early Management**

- Early deterioration common in first few hours
- More than 20% experience decreased GCS of 2 points between EMS and initial ED arrival
- Early neurological deterioration is common and long-term outcomes are not good

**Most important EMS care**

- **TIME OF ONSET**
  - Advanced notice to get CT scanner ready and CT scan on arrival before full evaluation

**ED Management**

- Should have Neurology, Neurosurgery, Neuroradiology, and Critical Care facilities
- Consultants contacted immediately
- Use severity score. NIH can be used but ICH score is widely used and has been validated. Not used for prognosis. (level B evidence)
- Prolonged ED stays lead to worse outcomes - Pathways for BP lowering and reversal of anticoagulation can be helpful

**ICH Score**

<table>
<thead>
<tr>
<th>ICH Score (Hemphill et al.)</th>
<th>Points</th>
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<tbody>
<tr>
<td>GCS 3-4</td>
<td>2</td>
</tr>
<tr>
<td>5-12</td>
<td>1</td>
</tr>
<tr>
<td>13-15</td>
<td>0</td>
</tr>
<tr>
<td>Age &gt;/=60</td>
<td>1</td>
</tr>
<tr>
<td>cMCA</td>
<td>0</td>
</tr>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Infratentorial</td>
<td>1</td>
</tr>
<tr>
<td>Supratentorial</td>
<td>0</td>
</tr>
<tr>
<td>ICH volume</td>
<td></td>
</tr>
<tr>
<td>&gt;/=100</td>
<td>1</td>
</tr>
<tr>
<td>&lt;100</td>
<td>0</td>
</tr>
<tr>
<td>Intraventricular bleed</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>ICH Score</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0-6 points</td>
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**Treatment**

- Coagulation deficiency or thrombocytopenia should receive replacement (Level C evidence)
- INR elevation because of vitamin K abnormality should have replacement with Vit K (level C evidence) and PCC/FFP (level B evidence)
- Factor VIIa is no longer recommended (level C evidence)

**Imaging**

- CT scan gold standard but MRI can also be performed – rapid imaging (level A evidence)
- CT imaging within 3 hours of initial CT shows expansion of hematoma in 28-38% of patients
- CTA can identify those at risk for expansion by the “spot sign” (level B evidence)
Treatment

- Novel anticoagulant reversal
  - Reversal should entail PCCs or factor VIIa
  - Consider activated charcoal if ingestion <2 hours
  - Consider hemodialysis for dabigatran

All level C evidence

- Protamine sulfate to reverse heparin (level C evidence)
- Usefulness of platelet transfusion uncertain
- Pneumatic compression for use in DVT prophylaxis (level A evidence) – after cessation of bleeding low dose heparin can be used
- Consider IVC filter for those with previous DVT or PE

BP Lowering

- For ICH patients presenting with SBP between 150 and 220, acute lowering of SBP to 140 mm Hg is safe (Level of Evidence A)
- Can be effective for improving functional outcome (Level of Evidence B)
- For ICH patients presenting with SBP >220 mm Hg, consider aggressive reduction of BP with a continuous intravenous infusion and frequent BP monitoring (Level of Evidence C)

Glucose monitoring and Temp Management

- Glucose should be monitored and should try to avoid hyper and hypoglycemia (level C evidence)
- Treatment of Fever is reasonable (level C evidence)

Seizures

- Clinical seizures should be treatment with anti-seizure medications (level A evidence)
- Those with EEG findings of seizure should be treated (level C evidence)
- Continuous EEG monitoring probably indicated (level C evidence)
- Prophylactic anti-seizure medication not indicated (level B evidence)

Management of complications

- Dysphagia screen should be done to prevent pneumonia (level B evidence)
- Screening for MI appropriate (level C evidence)
ICP monitoring

- Reasonable for treatment of hydrocephalus or altered mental status with GCS <8
- Corticosteroids for increased ICP not indicated (level B evidence)

Surgery

- Patients with cerebellar hemorrhage who are deteriorating neurologically or who have brainstem compression and/or hydrocephalus from ventricular obstruction should undergo surgical removal of the hemorrhage as soon as possible
- Early hematoma evacuation not clearly beneficial
- Thrombolytic usage in ventricles or endoscopic treatments are of uncertain benefit

Prognosis

- Aggressive care and postponement of DNR/DNI in first 2 days probably recommended (level B evidence)
- Prognostic models all biased and fail to show benefit but early surgery despite DNAR orders can be beneficial

Prevention of Recurrent ICH

- Stratification of recurrent ICH
  - Lobar location of the initial ICH
  - Older age
  - Presence and number of microbleeds on gradient echo MRI
  - Ongoing anticoagulation
  - Presence of apolipoprotein E ε2 or ε4 alleles
- BP controlled <130/80
- Avoid long-term anticoagulation at least 4 weeks after and potentially for life
- Novel anticoagulant use is uncertain after ICH
- Don’t restrict statins

Early Rehab

Conclusions and highest evidence

- Rapid Imaging
- Rapid Treatment
- Rapid BP Management (level A)
- Treat Clinical Seizures (level A)
Venous Thromboembolism in Pregnancy

Background

Venous Thromboembolism in Pregnancy

Leading cause of maternal mortality and morbidity in the developed world

Background

- Occurs 85% in LEFT LEG versus 55% in non-pregnant
- 72% proximal ilio-femoral versus 9% non-pregnant

Risk factors

- Previous venous thrombosis in pregnancy (6-9%)
- Hyperemesis (because of dehydration and immobility)
- High BMI
- Immobility
- Thrombophilias

Post-partum risk factors

- C-section (especially urgent or with post-partum hemorrhage)
- Preeclampsia with fetal growth restriction
- Thrombophilia
- Post-partum infection
Diagnosis of DVT

- Leg swelling
- Dyspnea
- Lower abdominal pain from extension to pelvic veins
- Difficult to differentiate from physiology of preg
- Less than 10% confirmed when suspected

Imaging and studies

- Compression duplex ultrasonography (negative predictive value of 99.5%)
- MRI or xray venography can be considered for iliocaval venous thrombosis

PE diagnosis

- Less than 3% have low O2 sats <90%
- Ultrasound LE can be considered first
- CXR and EKG can be good initial studies to look for signs of PE or alternative diagnoses
- V/Q scan next because of lower radiation
- CT scanning next but potential increased risk of breast CA from radiation (though NO increased risk to fetus)

D-dimer

Not recommended as there is no adjustment yet and this increases with gestational age

LEFT rule

- Assess pre-test probability
  - 3 variables
    - Left Calf circumference ≥2 cm or more from right calf
    - Edema
    - First trimester pregnancy
  - Absence of any of these criteria identified women who did not have DVT (PPV low)
  - Modified Wells has worked but needs more studies

Treatment in pregnancy

- Unfractionated heparin or low-molecular-weight heparin because they do not cross the placenta or enter breast milk
- Coumadin contraindicated because of teratogenesis (can be used for breast feeding)
- Novel anticoagulants should be avoided – cross placenta
- Discontinue 24 hours prior to delivery for anesthesia
Treatment post-partum

- Low-molecular weight heparin more effective than unfractionated and do not have post-partum bleed issues
- Re-initiated at least 4 hours after removal of epidural catheter and continued for 6 weeks to 3 months
- Stockings show no benefit

tPA

Only for massive life-threatening PE or DVT threatening leg viability

IVC filters

Generally not indicated – decrease PE incidence but increase DVT risk

New frontiers

- D-dimer
- Scores for pre-test probability
- Data to inform maternal and fetal risks for imaging
- More data to change treatment including oral anticoagulants, dosing, and duration