Spot Urine Protein Testing for Proteinuria in Pregnancy

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CLINICAL QUESTION

Are spot urine protein tests, as compared to 24 hour proteinuria assays, sufficient to rule out significant proteinuria when considering a diagnosis of preeclampsia?

BACKGROUND

- November 2013, American Congress of Obstetrician and Gynecologists (ACOG) added protein/creatinine ratio (PCR) ≥ 0.3 mg/dL to the criteria for preeclampsia as an alternative to 24-hr urine protein.
- Degree of proteinuria does not change management or classification of preeclampsia.
- Proteinuria is not necessary for diagnosis of preeclampsia if other diagnostic criteria are present:
  - Thrombocytopenia
  - Renal insufficiency
  - Impaired liver function
  - Pulmonary edema
  - Cerebral or visual symptoms

METHODS

- Literature search – Identify various methods used to detect proteinuria
- Search engines – PubMed, Google Scholar, Medline
- Search phrases – “preeclampsia” AND
  - “Urine spot protein creatinine ratio”
  - “protein creatinine ratio”
  - “albumin creatinine ratio”
- Inclusion criteria:
  - English
  - Published between 2003 – 2013
  - Pregnant women after 20 weeks gestation
  - No chronic hypertension
  - Blood pressure greater than or equal to 140 mm Hg systolic or greater than or equal to 90 mm Hg diastolic on two separate occasions
- 19 published articles found based on search phrases and 8 articles reviewed based on inclusion criteria
- High correlation (r=0.88) between spot PCR and 24-hr urine protein
- Many clinicians suggest that PCR >0.3 should be followed by a 24-hr urine collection
- Discrepancy between use of albumin/creatinine ratio (ACR) vs PCR
- AAFP criteria (2008) refer to 24-hr urine but note that they accept PCR of <0.21 to rule out significant proteinuria in pregnancy

RESULTS

<table>
<thead>
<tr>
<th>Table 1. Comparison of Urine Assays</th>
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</thead>
<tbody>
<tr>
<td><strong>Collection</strong></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
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<tr>
<td><strong>Cutoff for proteinuria</strong></td>
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<tr>
<td><strong>Cost (Quest Diagnostics)</strong></td>
</tr>
<tr>
<td><strong>Cost</strong></td>
</tr>
<tr>
<td><strong>Limitations</strong></td>
</tr>
</tbody>
</table>

REFERENCES


CONCLUSIONS

- Review found too many differences in methodology amongst the studies for definitive answer
- PCR is a faster, easier test that can safely rule out proteinuria in pregnancy
- Cost varies but remains a consideration and 24-hour urine is generally cheaper than PCR

FUTURE STUDIES

- Large-scale meta-analysis to analyze current data
- Compare 24-hr urine protein to PCR and ACR among same patients
- Determine degree to which time of day or recent food intake affects spot ACR or PCR, and most significant cutoff values
- Anticipate PCR cost to decrease when demand increases

CONTACT

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Physician Oral Contraceptive Prescribing Practices
Cole Gillenwater, BS, Trisha Melhado, MPH, Terry Ast, BA, and Rick Kellerman, MD
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BACKGROUND
• The state of Kansas passed legislation SB 62 in July 2012
  – Expands the opportunity for physicians to refuse prescribing birth control
    o Pills
    o IUDs
    o Emergency contraception
  – Vague language
  – Freedom to deny reproductive health care
  – No legal repercussions
• Previous research has not examined the potential mismatch between physicians’ practice policies for prescribing oral contraceptives (OC) and patient requests for contraception

OBJECTIVE
Assess practice policies and current procedures for OC prescribing among family physicians in the state of Kansas

METHODS
Sample:
• A convenience sample of family physicians
• Family Medicine Research and Data Information Office (FM RADIO) electronic survey
Instrument:
• 9 item questionnaire
  – Physicians’ OC prescribing practices
  – Practice hiring practices based on OC prescribing
  – Practice’s policy regarding prescribing OC
  – Physician demographics
Statistical Analysis: Descriptive statistics

RESULTS
• Response rate = 56% (42/75 physicians)
• 95% (n=40) of physicians prescribe and 5% (n=2) do not prescribe OC

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
</tr>
<tr>
<td>Age – mean (range)</td>
<td>50 (29-72)</td>
</tr>
<tr>
<td>Practice location</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>26</td>
</tr>
<tr>
<td>Suburban</td>
<td>19</td>
</tr>
<tr>
<td>Midsize Rural</td>
<td>14</td>
</tr>
<tr>
<td>Small Rural</td>
<td>41</td>
</tr>
<tr>
<td>Years in Practice – mean (range)</td>
<td>20 (.05-40)</td>
</tr>
</tbody>
</table>

• Among the physicians that prescribe OC, 92% work in a practice where all of the physicians prescribe OC and 8% work in a practice where some of the physicians do not prescribe OC
• Among the two physicians who do not prescribe OC, one works in a practice where all of the physicians prescribe OC and one works in a practice where some of the other physicians do not prescribe OC
• Physicians’ practices hiring practices
  – 79% (n=30) would hire a physician who did not prescribe OC
  – 21% (n=8) would NOT hire a physician who did not prescribe OC
• 100% report practice does not have a written policy regarding OC prescribing practices
• Unwritten OC prescribing practice policy
  – 38 (93%) practices do NOT have an unwritten OC prescribing policy
  – 3 (7%) practices have an unwritten OC prescribing policy
• Physician comments related to unwritten OC prescribing procedures:
  – “We have non-physicians prescribing OCs”
  – “The patient is advised to talk to the Doctor [regarding] limitation in the use of contraceptives...[and] informed that that visit will be at no cost to the patient or their insurance”
  – “We are a Catholic institution and formal Bishops policy forbids use of contraception... We are supposed to clearly distance ourselves from the institution when prescribing contraception but I mostly ignore that policy”

CONCLUSIONS
• No practices have a written policy regarding OC prescribing status for patients
• Most practices do not have an unwritten procedure regarding prescribing OC

LIMITATION
• Surveyed physicians in Kansas and response rate was 56%.

DISCUSSION
• Implication – patients may end up with physicians who are not able to meet their request for OC
• Patients should have clear information about practices’ and physicians’ OC prescribing habits prior to appointments
• Next steps
  – Patient experience obtaining OC
  – Explore potential OC expectation mismatches between patients and physicians

REFERENCE
2012, Kansas House Substitute for SB 62 by Committee on Judiciary. Concerning medical care facilities; relating to abortion; sterilization. 2011-2012 Leg.

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Efficacy of Local Corticosteroid Injection for Carpal Tunnel Syndrome: A Literature Review

Brett Hoffecker, MD, Aaron Hightower, MD, Jessica Jarvis, MD, Douglas Lewis, MD and Jennifer Wipperman, MD, MPH
KUSM-Wichita Family Medicine Residency at Via Christi

BACKGROUND

- Carpal tunnel syndrome (CTS) is the most common compressive neuropathy of the upper extremity
- Non-surgical management is the initial strategy for most patients with mild-moderate CTS, and may also be curative
- Local corticosteroid injection is a simple, quick office procedure that family physicians can offer patients
- 2007 Cochrane review found local steroid injection provides relief for up to 1 month in patients with CTS, however recent evidence suggests longer-term benefit

CLINICAL QUESTION

In patients with carpal tunnel syndrome (CTS), do local corticosteroid injections provide symptomatic relief beyond one month?

METHODS

- Literature search – reviewed studies published Jan 2007 to Nov 2014
- Search engines – PubMed and Cochrane
- Search terms – carpal tunnel syndrome, steroid, corticosteroid, injection
- Inclusion criteria
  - Adults ages 18 and older
  - All severities of CTS
  - CTS defined using clinical or electrodiagnostic criteria

Thirty-eight relevant studies were found; eight studies met the inclusion criteria

<table>
<thead>
<tr>
<th>Ref #</th>
<th>N</th>
<th>Study design</th>
<th>Study length (months)</th>
<th>Max # of injections</th>
<th>Treatment</th>
<th>Main Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>419</td>
<td>R</td>
<td>60</td>
<td>2</td>
<td>40 mg methylprednisolone (MPS)</td>
<td>Improved symptoms at 6, 12 and 18 months</td>
</tr>
<tr>
<td>2</td>
<td>46</td>
<td>RCT</td>
<td>3</td>
<td>1</td>
<td>40 mg MPS – ultrasound vs. blind technique</td>
<td>Improved symptoms and function at 6 and 12 weeks, ultrasound &gt; blind</td>
</tr>
<tr>
<td>3</td>
<td>57</td>
<td>RCT</td>
<td>6</td>
<td>1</td>
<td>40mg triamcinolone acetonide (TCA) or saline</td>
<td>Improved symptoms and EPS scores at 2 and 6 months</td>
</tr>
<tr>
<td>4</td>
<td>69</td>
<td>RCT</td>
<td>12</td>
<td>2</td>
<td>10 mg TCA or saline</td>
<td>Improved symptoms and function at 1, 3, 6 and 12 months</td>
</tr>
<tr>
<td>5</td>
<td>120</td>
<td>P</td>
<td>12</td>
<td>3</td>
<td>40 mg MPS</td>
<td>Improved symptoms at 1 year</td>
</tr>
<tr>
<td>6</td>
<td>111</td>
<td>RCT</td>
<td>12</td>
<td>1</td>
<td>80mg or 40mg MPS or saline</td>
<td>Improved symptoms at 10 weeks, less likely to have surgery at 1 year</td>
</tr>
<tr>
<td>7</td>
<td>824</td>
<td>P</td>
<td>60</td>
<td>1</td>
<td>20 mg MPS + splint</td>
<td>Rate of surgery 14% at 1 year, 33% at 5 years</td>
</tr>
<tr>
<td>8</td>
<td>163</td>
<td>RCT</td>
<td>24</td>
<td>2</td>
<td>20 mg paramethasone acetonide vs CTD</td>
<td>No difference in symptoms at 12 months, slight improvement at 24 months CTD &gt; steroid</td>
</tr>
</tbody>
</table>

RESULTS

Figure 1: Percentage of patients with significant improvement in CTS at 12 months

Figure 2: Percentage of patients receiving surgery 1 year after local steroid injection for CTS

CONCLUSIONS

- Local steroid injection for CTS provides improvement in symptoms for greater than 1 month (SOR A) and up to 12 months (SOR B)
- Local steroid injection decreases need for surgery at 1 year in patients with non-severe CTS (SOR B)
- Local steroid injection is a valuable treatment option for patients with CTS and should be offered
- While rare, potential risks of nerve injury and tendon rupture should be discussed with patients
- None of these events occurred in any of the trials
- Larger studies are needed to confirm length and magnitude of benefit, as well as potential effects on surgical outcomes

REFERENCES


CONTACT

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Why My Patients Visit the Emergency Department
A Quality Improvement Project
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²KUSM – Wichita Family Medicine Residency at Wesley Medical Center

BACKGROUND

- Emergency Department (ED) visits have increased 34% from 15 years ago, with over 130 million ED visits in 2010
- Many ED visits are for non-urgent concerns, which could be equally addressed in an outpatient setting
- Within the Wesley Family Medicine (WFM) Residency Clinic, our patients often visit the ED
- Learning about our patients who visit the ED can guide interventions to reduce ED visits
- Reducing ED visits by our clinic patients can
  - Decrease the ED's patient burden
  - Provide more cost effective medical care
  - Enhance continuity of care by PCP’s
  - Increase patient satisfaction with PCP care

OBJECTIVE

Understand patients’ reasons for using the ED in order to guide quality improvement projects aimed at reducing non-urgent ED use.

METHODS

- Participants
  - WFM patients who used ED from 12/2/13 – 4/30/14 participated in a telephone interview during Summer 2014 regarding their ED visit
- Data sources
  - Electronic medial record
  - Demographics: sex, age, insurance
  - Chief complaint
  - Telephone survey
    - Demographics: race/ ethnicity, education
    - Outcome of ED visit
    - Frequency of ED use
    - Reason ED used vs clinic
    - Thoughts on reducing ED use
- Analysis: descriptive

RESULTS

- 100 responded to the survey and 335 did not respond (response rate = 23%)
- EMR responder characteristics
  - 60% female
  - 37% parents answering for children <18 years old, followed by 31-40 year olds (18%) and 21-30 year olds (13%)
  - 51% have Medicaid as primary insurance
  - Chief complaint: Musculoskeletal (20%), GI (15%), Respiratory (15%), Trauma (10%)
- Self reported characteristics
  - 52% reported non-Hispanic White
  - 81% of adults had a high school diploma or higher
  - 79% of patients discharged home

DISCUSSION

- Visits evaluated were primarily by patients who were >18 years old, female, white, and/or had Medicaid
- Most visits resulted in patients being discharged home, with the most common concern being musculoskeletal
- An overwhelming majority of responders use the ED at least once every 6 months, if not more
- Patients who use the ED more than once a month may be candidates for targeted ED education
- Patients most often used the ED because “the clinic was closed” and they had “real emergencies”
- Patients thought they would use the ED less with more clinic hours and same day appointments, however, these changes are difficult to implement in a timely manner
- Offering patients help in deciding what constitutes a “real emergency”, via educational materials and phone triage lines, may be a more readily available approach to decreasing ED use

NEXT STEPS

- Evaluate logistics of implementing extended clinic hours and increased same day visits
- Create advertising to promote phone triage lines and education regarding when to use ED
- Investigate targeted ED education for patients who use the ED more than once a month

CONTACT INFORMATION

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Primary Hyperventilation Syndrome: Need for Early Outpatient Intervention
A Case Report
Jessica Treece, D.O.
KUSM – Wichita Family Medicine Residency at Wesley Medical Center

INTRODUCTION

• Primary hyperventilation syndrome (PHS) – inappropriate increase in minute ventilation beyond metabolic demands

• Psychogenic or organic etiology

• Psychogenic hyperventilation syndrome – generalized anxiety disorder – episodic panic disorder

• History of shortness of breath, anxiety, rapid breathing, dizziness, palpitations, diaphoresis, and/or chest pain

CASE PRESENTATION

• 63 year old healthy female presenting to emergency department – one month history of shortness of breath – increase in shortness of breath over the past 12 hours – complains of lightheadedness and palpitations – family history of anxiety and recent stressor

• Patient was seen in PCP office 3 times in the last month for dyspnea without hypoxia

• Outpatient workup – cardiac stress test – normal – 2-D echo – normal – scheduled pulmonary consult

• Emergency room workup – CBC, CMP, and ABG – respiratory alkalosis with compensation was identified – IV: hypokalemia and hypomagnesium

• Patient admitted to ICU overnight – trials of paper bag breathing: improved symptoms and ABG – alprazolam every 6 hours – next day ABG – pH and CO2 levels normal

LAB RESULTS

<table>
<thead>
<tr>
<th>Vital signs</th>
<th>Test Value (normal range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.40 (7.35-7.45)</td>
</tr>
<tr>
<td>pCO2</td>
<td>10 (34-45)</td>
</tr>
<tr>
<td>PO2</td>
<td>97 (75-100)</td>
</tr>
<tr>
<td>HCO3</td>
<td>13 (23-28)</td>
</tr>
</tbody>
</table>

Figure 1: Patient’s blood bicarbonate concentrations & pH superimposed on Davenport Diagram

REFERENCES


IMPLICATIONS

• Untreated PHS can have serious metabolic consequences

• Hallmark symptoms to screen include – dyspnea – increased resting respiratory rate – lightheadedness – palpitations – chest pain – diaphoresis

• PHS can present with or without hypoxia

• Rule out organic causes including cardiopulmonary, infection, and intracranial etiology

• PHS lab abnormalities – respiratory alkalosis – hypokalemia – hypomagnesium – elevated lactic acid

• Treatment during acute exacerbation – paper bag breathing while monitoring oxygen saturation – supplemental oxygen if hypoxic – reassurance – low dose beta-blockers – benzodiazepines

CONCLUSION

• Untreated PHS can have serious metabolic consequences

• Hallmark symptoms to screen include – dyspnea – increased resting respiratory rate – lightheadedness – palpitations – chest pain – diaphoresis

• PHS can present with or without hypoxia

• Rule out organic causes including cardiopulmonary, infection, and intracranial etiology

• PHS lab abnormalities – respiratory alkalosis – hypokalemia – hypomagnesium – elevated lactic acid

• Treatment during acute exacerbation – paper bag breathing while monitoring oxygen saturation – supplemental oxygen if hypoxic – reassurance – low dose beta-blockers – benzodiazepines

IMPLICATIONS

• Untreated PHS can impact patient quality of life and result in excessive clinical work up

• Health care costs – ICU, labs, and imaging estimated at $33,000 – Outpatient care with alprazolam and paper bag breathing behavior training estimated at $150

CONTACT

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Problem

- Family physicians provide comprehensive, coordinated care of patients including gastrointestinal endoscopic procedures.
- Gastrointestinal endoscopy continuing medical education opportunities exist to update clinicians on:
  - New techniques
  - Treatment guidelines
  - Research findings
- However continuing medical education:
  - Expensive
  - Few in number
  - Require travel
  - Require lost time from practice

Solution

- Free quarterly seminars offered to Kansas family physicians that perform endoscopy.
- Featuring local and national speakers focusing on endoscopy topics.
- Presented via webinar

Methods

- Aaron Sinclair, MD, FAAFP
  - Assistant Professor, University of Kansas School of Medicine – Wichita
  - Wesley Family Medicine Residency faculty
  - Has performed endoscopy for 10 years in rural practice and in resident education
  - Member of American Association of Primary Care Endoscopy (AAPCE), Board of Directors 2014.
  - Has attended endoscopy seminars through AAPCE
- Organized endoscopy CME seminars for family physicians affiliated with KUSM-W
  - Four times a year
  - Thursday morning from 7:30-8:30 am
  - Presenters are local and national family physicians experienced in endoscopy
- Wichita area family physician who perform endoscopy are invited to attend in person.
- In May, offered via webinar to physicians across Kansas.
- Physicians in rural areas contacted by mail and offered series via Internet webinar.

Results

- Participation:
  - Average 13 participants per session in person and online
- Evaluations:
  - Average 94% Strongly Agree or Agree that:
    - Learning objectives were met.
    - Presentation addressed the learning needs in an unbiased/evidence-based manner.
    - Speaker demonstrated a knowledge and expertise of topic.
    - Participant improved ability to integrate knowledge, new skills, and strategies into practice.
- What would you (participants) do differently after attending these seminars in 2014:
  - February: Colon Ink: Endoscopic Tattooing Options and Techniques by Aaron Sinclair, MD
    - "Discuss these options more with residents."
    - "I feel more comfortable tattooing lesions. I will try this technique more in my practice."
  - May: Colorectal Cancer Screening: Matching the Test to the Patient by Mark Koch, MD
    - "Discuss all options and risks and benefits for each patient."
    - "Assess risk vs benefit. Assess age and cultural needs."
  - August: Serrated Polyps by Aaron Sinclair, MD
    - "I will do more cold biopsies. Watch for mucus layer on top of lesions."
    - "Increase cold bx with small polyps."
    - "Read path reports with an eye toward serrated polyps and what means and follow-up needs."
    - "Use more cold biopsy."
  - October: Ensuring a Clean Colon: Selecting the Right Bowel Prep by Doug Lewis, MD
    - "Good information but already using the preps."
    - "Low volume PEG Preps; scoring bowel prep with Boston guidelines."
    - "Miralax/Gatorade/Dulcolax prep +/- simethicone for my prep recs from now on."

Results continued

- Participants who incorporated information from a previous endoscopy presentation into their endoscopy or related treatments describing results:
  - "India ink - went well. Patient needed partial colectomy and this helped surgeon greatly."
  - "Improved management of Serrated Adenomas."

Conclusion

- Overall a positive experience for participants.
- An inexpensive way to provide quality CME on endoscopy topics to local and distant physicians.
- Physicians connecting online appreciate the opportunity for CME and information on endoscopy.

Problems and Solutions

- Problems with audio
  - An inline microphone was added to computer used at KUSM-W to improve audio.
  - A continuous loop before the conference starts was added to allow webinar participants to test audio and video connection.

Future Plans

- Recruit other Kansas Physicians performing endoscopy who might be interested in participating.
- Expand to other topics for local and distance learners such as obstetric and practice management.
- Schedule for 2015 Advanced Endoscopy Topics:
  - Feb 5, 2015
    - "Top Gastrointestinal P.O.E.M.s (Patient Oriented Evidence that Matters)"
      - Scott Strayer, MD
  - May 7, 2015
    - "Helicobacter Pylori: Endoscopic and Laboratory Testing Strategies"
      - Chad Johanning, MD
  - August 6, 2015
    - "Celiac Disease: Endoscopic and Laboratory Testing Strategies"
      - Maurice Duggins, MD
  - November 5, 2015
    - "Case Based Evaluation of Common Upper Endoscopic Findings"
      - Justin Bailey, MD

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