Top Articles of 2014: Turning Evidence into Practice

Mel L. Anderson, MD, FACP
Associate Professor of Medicine
University of Colorado School of Medicine

Chief, Hospital Medicine Section
Denver VA Medical Center
Roadmap

- Case based interactive format
- Multiple articles per case
- Quick hitters and Short takes
- Summary of suggested practice changes
Learning Objectives

1. Describe the primary conclusions

2. Identify changes to your practice

3. Implement these practice changes
Journals Reviewed...

Jan 2014 – Dec 2014
- N Engl J Med
- JAMA; JAMA Intern Med
- J Gen Intern Med
- J Hospit Med
- Lancet; Stroke; Ann Emerg Med
- Am J Med; Am Heart J; Am J Cardiol
- Ann Intern Med + ACP J Club
- Crit Care Med; Am J Respir Crit Care Med
- Circulation, J Am Coll Cardiol
- ACP Plus, BMJ Online update, J Watch
Disclosures

- None relevant
Acknowledgements

- Jeffrey J. Glasheen, MD
  University of Colorado School of Medicine
- Joseph Li, MD
  Harvard Medical School
- Anneliese Schleyer, MD
  University of Washington
- Brad Sharpe, MD
  UCSF School of Medicine
2014 Notables

- **JNC 8** altered BP treatment targets
- **ACC/AHA Cholesterol Guidelines** change to risk based treatment:
  - High intensity
  - Moderate intensity

*JAMA* 2014;311:507-520.
*Circulation* 2014;129[suppl 2]:S1-S45.
2014 Notables

- Updated ACC/AHA Periop Guidelines
- Algorithm largely the same
- Downgraded BB to IIb
- Periop Statin IIa vascular surgery
- Post-op troponin IIb

*J Am Coll Cardiol* 2014;64:2371.
2014 Notables

- Updated ACC/AHA NSTEMI Guidelines

*J Am Coll Cardiol* 2014;64:e139-228.
Case 1

71 y/o woman with 1 week increasing dyspnea, pleuritic chest pain, no cough
PMHx: Gold III COPD, HTN; pan inhalers and oxygen 2 lpm
Temp 99.2, HR 108, RR 24, BP 112/68, needing 6 lpm O2 sats 92%
Awake and alert, dec BS bilat, good air mvnt
CXR clear, creat 1.3; CT-PE + bilateral PEs
Case 1

She is started on UFH bolus and gtt and admitted to the ICU.

ECHO: + RV dilation and dysfunction
Troponin I: 0.158

You know what question is coming, right?...
Intermediate Risk Acute PE

A. IV tenecteplase ↓ all cause mortality
B. IV tenecteplase ↓ hemodynamic decompensation
C. IV tenecteplase ↑ length of stay
D. Consult Magic 8 ball...
Fibrinolysis for Patients with Intermediate-Risk Pulmonary Embolism

Guy Meyer, M.D., Eric Vicaut, M.D., Thierry Danays, M.D., Giancarlo Agnelli, M.D., Cecilia Becattini, M.D., Jan Beyer-Westendorf, M.D., Erich Bluhmki, M.D., Ph.D., Helene Bouvaist, M.D., Benjamin Brenner, M.D., Francis Couturaud, M.D., Ph.D., Claudia Dellas, M.D., Klaus Empen, M.D., Ana Franca, M.D., Nazzareno Galiè, M.D., Annette Geibel, M.D., Samuel Z. Goldhaber, M.D., David Jimenez, M.D., Ph.D., Matija Kozak, M.D., Christian Kupatt, M.D., Nils Kucher, M.D., Irene M. Lang, M.D., Mareike Lankeit, M.D., Nicolas Meneveau, M.D., Ph.D., Gerard Pacouret, M.D., Massimiliano Palazzini, M.D., Antoniu Petris, M.D., Ph.D., Piotr Pruszczynk, M.D., Matteo Rugolotto, M.D., Aldo Salvi, M.D., Sebastian Schellong, M.D., Mustapha Sebbane, M.D., Bozena Sobkowicz, M.D., Branislav S. Stefanovic, M.D., Ph.D., Holger Thiele, M.D., Adam Torbicki, M.D., Franck Verschuren, M.D., Ph.D., and Stavros V. Konstantinides, M.D., for the PEITHO Investigators*
Pulmonary Embolism Thrombolysis trial… "PEITHO"
“Pulmonary EmboLism Lysis with Tenecteplase – Intermediate risk Trial”...

‘PELT-IT’
“pulMonary Embolism Lysis with Tenecteplase – Intermediate risk Trial”...

‘MELT-IT’!

Mel’s Magical Journal 2014.
PEITHO Trial

Question: What is the effect of IV tenecteplase in intermediate risk pulmonary embolism?

Design: Double blind RCT

Patients: 1005 patients, PE<15 days, + RV dysfxn

1° Outcome: Death or hemodynamic decompensation at 7 days; also recurrent PE, bleeding of all types

### PEITHO Trial: Results

<table>
<thead>
<tr>
<th></th>
<th>Plac.</th>
<th>Lytics</th>
<th>ARR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Endpoint</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hemod. Decomp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All cause death</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# PEITHO Trial: Results

<table>
<thead>
<tr>
<th></th>
<th>Plac.</th>
<th>Lytics</th>
<th>ARR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Endpoint</td>
<td>5.6%</td>
<td>2.6%</td>
<td>3.0%</td>
<td>0.02</td>
</tr>
<tr>
<td>Hemod. Decomp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All cause death</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## PEITHO Trial: Results

<table>
<thead>
<tr>
<th></th>
<th>Plac.</th>
<th>Lytics</th>
<th>ARR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Endpoint</td>
<td>5.6%</td>
<td>2.6%</td>
<td>3.0%</td>
<td>0.02</td>
</tr>
<tr>
<td>Hemod. Decomp.</td>
<td>5.0%</td>
<td>1.6%</td>
<td>3.4%</td>
<td>0.002</td>
</tr>
<tr>
<td>All cause death</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## PEITHO Trial: Results

<table>
<thead>
<tr>
<th></th>
<th>Plac.</th>
<th>Lytics</th>
<th>ARR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Endpoint</td>
<td>5.6%</td>
<td>2.6%</td>
<td>3.0%</td>
<td>0.02</td>
</tr>
<tr>
<td>Hemod. Decomp.</td>
<td>5.0%</td>
<td>1.6%</td>
<td>3.4%</td>
<td>0.002</td>
</tr>
<tr>
<td>All cause death</td>
<td>1.8%</td>
<td>1.2%</td>
<td>0.6%</td>
<td>NS</td>
</tr>
</tbody>
</table>

But what about bleeding...
## PEITHO Trial: Results

<table>
<thead>
<tr>
<th></th>
<th>Plac.</th>
<th>Lytics</th>
<th>ARΔ</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non CNS bleed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30d bad events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# PEITHO Trial: Results

<table>
<thead>
<tr>
<th></th>
<th>Plac.</th>
<th>Lytics</th>
<th>AR ▲</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non CNS bleed</td>
<td>1.2%</td>
<td>6.3%</td>
<td>5.1%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30d bad events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PEITHO Trial: Results

<table>
<thead>
<tr>
<th></th>
<th>Plac.</th>
<th>Lytics</th>
<th>AR↑</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non CNS bleed</td>
<td>1.2%</td>
<td>6.3%</td>
<td>5.1%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stroke</td>
<td>0.2%</td>
<td>2.4%</td>
<td>2.2%</td>
<td>0.003</td>
</tr>
<tr>
<td>30d bad events...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event</th>
<th>Plac.</th>
<th>Lytics</th>
<th>AR↑</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non CNS bleed</td>
<td>1.2%</td>
<td>6.3%</td>
<td>5.1%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stroke</td>
<td>0.2%</td>
<td>2.4%</td>
<td>2.2%</td>
<td>0.003</td>
</tr>
<tr>
<td>30d bad events...</td>
<td>11.8%</td>
<td>10.8%</td>
<td>1.0%</td>
<td>NS</td>
</tr>
</tbody>
</table>

*PEITHO Trial: Results*

PEITHO Trial

Question: What is the effect of IV tenecteplase in intermediate risk pulmonary embolism?

Design: Double blind RCT

Patients: 1005 patients, PE<15 days, + RV dysfxn

1° Outcome: Death or hemodynamic decompensation at 7 days; also recurrent PE, bleeding of all types

Conclusion: IV tenecteplase prevented hemodynamic decompensation but increased major hemorrhage

Bottom Line?

- Individualized decision-making
- Informed consent...
Case 1

Significant underlying COPD, uncertain pulmonary status after submassive PE
Careful discussion pros/cons
IV rt-PA 60 minutes
Clinical response in hours
Normal ECHO 2 days later! No serious bleeding
Intermediate Risk Acute PE

A. IV tenecteplase $\downarrow$ all cause mortality
B. IV tenecteplase $\downarrow$ hemodynamic decompensation
C. IV tenecteplase $\uparrow$ length of stay
D. Consult Magic 8 ball...
Quick hitter:

Clinical and Safety Outcomes Associated With Treatment of Acute Venous Thromboembolism: A Systematic Review and Meta-analysis

Lana A. Castellucci, MD; Chris Cameron, MSc; Grégoire Le Gal, MD, PhD; Marc A. Rodger, MD, MSc; Doug Coyle, PhD; Philip S. Wells, MD, MSc; Tammy Clifford, PhD; Esteban Gandara, MD, MSc; George Wells, PhD; Marc Carrier, MD, MSc

*JAMA* 2014;312(11):1122-1135.
Quick hitter:

1. Overall no significant differences across most comparisons...

2. UFH + warfarin may be the least effective regimen

3. Rivaroxaban and apixaban may be associated with lower bleeding risk

*JAMA* 2014;312(11):1122-1135.
ADJUST-PE: Another study showing age-adjusted D-dimer retains sensitivity but improves specificity (negative = age x 10 ng/mL). *JAMA* 2014;311(11):1117-1124.

Retrospective review of IVC filter placement (n=758) across three centers. Complications were common and only 36% had them removed at 4.5 months f/u. Don’t forget about them! *Am J Cardiol* 2014;113:389-394.
Case Report

**Chronic subdural haematoma secondary to headbanging**

Ariyan Pirayesh Islamian, Manolis Polemikos, Joachim K Krauss

“Headbanging is a contemporary dance form...abrupt flexion-extension...”

Case 2

A 63 y/o woman presents to the ER with 4 days of dysuria, flank pain, and chills.

PMHx: Osteoporosis, episodic UTIs
Exam: 101.2, HR 102, RR 20, 88/55, SaO2 95% on room air. BP no better after 1 L NS.
Ill-appearing but alert; warm; percussion tenderness to R flank, otherwise non-focal.
UA pyuria, creat 1.9, WBC 18,000, lactate 4.2
Cultures are obtained and IV abx given in ER
What would you do next?

A. Place central line, begin protocol-guided Early Goal Directed Therapy (Rivers)
B. Skip central line if PIV ok, give IVF and pressors to keep SBP > 100 mm Hg
C. Begin IV hydrocortisone 100mg Q 8 hours
D. Calculate APACHE II score to guide APC treatment
E. I like them all except B...
A Randomized Trial of Protocol-Based Care for Early Septic Shock

The ProCESS Investigators*

Protocolized Care for Early Septic Shock

ProCESS

Question: Is protocolized care of severe sepsis / septic shock superior to usual care?

Design: Multicenter randomized trial comparing
1. “Protocol based EGDT”
2. “Protocol based standard care”
3. “Standard care”

Patients: 1341 patients, 60% in septic shock, average lactate about 5 mmol/L

1° Outcome: 60 day mortality

“Protocol based EGDT”

1. Central line w/ oximetric port
2. 500 cc fluid bolus until CVP 8-12 cm H2O
3. Vasoactive agents until MAP 65-90 mm Hg
4. Measure ScvO2; if ≤ 70%,
   --Transfuse PRBC to Hct 30% or greater
   --Inotropes until goal reached

“Protocol based Standard care”

1. 18g PIV x ii
2. 500-1000 cc fluid bolus within 20 minutes
3. 2 liters IVF in first hour
4. IVF at 250-500 cc/hr until replete
5. Vasoactive agents to keep SBP ≥ 100 mm Hg

“Standard care”

1. Manage as you see fit, my friend.

## Differences among groups

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBSc</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Line</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVF at 6 hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vasopressors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dobutamine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRBC transf.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Differences among groups

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBSc</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Line</td>
<td>93.6%</td>
<td>56.5%</td>
<td>57.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>IVF at 6 hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vasopressors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dobutamine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRBC transf.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Differences among groups

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBS&lt;sub&gt;c&lt;/sub&gt;</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Line</td>
<td>93.6%</td>
<td>56.5%</td>
<td>57.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>IVF at 6 hours</td>
<td>2.8 L</td>
<td>3.3 L</td>
<td>2.3 L</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Vasopressors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dobutamine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRBC transf.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Differences among groups

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBSc</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Line</td>
<td>93.6%</td>
<td>56.5%</td>
<td>57.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>IVF at 6 hours</td>
<td>2.8 L</td>
<td>3.3 L</td>
<td>2.3 L</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Vasopressors</td>
<td>54.9%</td>
<td>52.2%</td>
<td>44.1%</td>
<td>0.003</td>
</tr>
<tr>
<td>Dobutamine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRBC transf.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Differences among groups

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBSSc</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Line</td>
<td>93.6%</td>
<td>56.5%</td>
<td>57.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>IVF at 6 hours</td>
<td>2.8 L</td>
<td>3.3 L</td>
<td>2.3 L</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Vasopressors</td>
<td>54.9%</td>
<td>52.2%</td>
<td>44.1%</td>
<td>0.003</td>
</tr>
<tr>
<td>Dobutamine</td>
<td>8.0%</td>
<td>1.1%</td>
<td>0.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>PRBC transf.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Differences among groups

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBSc</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Line</td>
<td>93.6%</td>
<td>56.5%</td>
<td>57.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>IVF at 6 hours</td>
<td>2.8 L</td>
<td>3.3 L</td>
<td>2.3 L</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Vasopressors</td>
<td>54.9%</td>
<td>52.2%</td>
<td>44.1%</td>
<td>0.003</td>
</tr>
<tr>
<td>Dobutamine</td>
<td>8.0%</td>
<td>1.1%</td>
<td>0.9%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>PRBC transf.</td>
<td>14.4%</td>
<td>8.3%</td>
<td>7.5%</td>
<td>0.001</td>
</tr>
</tbody>
</table>
## Primary Endpoint

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBSc</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 day death</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Primary Endpoint

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBSc</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 day death</td>
<td>21.0%</td>
<td>18.2%</td>
<td>18.9%</td>
<td></td>
</tr>
</tbody>
</table>

## Primary Endpoint

<table>
<thead>
<tr>
<th></th>
<th>EGDT</th>
<th>PBS&lt;sub&gt;c&lt;/sub&gt;</th>
<th>Sc</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 day death</td>
<td>21.0%</td>
<td>18.2%</td>
<td>18.9%</td>
<td>NS</td>
</tr>
</tbody>
</table>

ProCESS

Question: Is protocolized care of severe sepsis / septic shock superior to usual care?

Design: Multicenter randomized trial comparing
1. “Protocol based EGDT”
2. “Protocol based standard care”
3. “Standard care”

Patients: 1341 patients, 60% in septic shock, average lactate about 5 mmol/L

1° Outcome: 60 day mortality

Conclusion: Protocol-based resuscitation did not improve outcomes
“Standard care” has changed the last decade + since Rivers trial published – more IVF, greater attention to early abx.

An opportunity to avoid CVC and complications

And there is another...

Goal-Directed Resuscitation for Patients with Early Septic Shock

The ARISE Investigators and the ANZICS Clinical Trials Group*

ABSTRACT

What would you do next?

A. Place central line, begin protocol-guided Early Goal Directed Therapy (Rivers)
B. Skip central line if PIV ok, give IVF and pressors to keep SBP > 100 mm Hg
C. Begin IV hydrocortisone 100mg Q 8 hours
D. Calculate APACHE II score to guide APC treatment
E. I like them all except B...
Lower versus Higher Hemoglobin Threshold for Transfusion in Septic Shock

Lars B. Holst, M.D., Nicolai Haase, M.D., Ph.D., Jørn Witterslev, M.D., Ph.D., Jan Wernerman, M.D., Ph.D., Anne B. Guttormsen, M.D., Ph.D., Sari Karlsson, M.D., Ph.D., Pär I. Johansson, M.D., Ph.D., Anders Åneman, M.D., Ph.D., Marianne L. Yang, M.D., Robert Winding, M.D., Lars Nebrich, M.D., Helle L. Nibro, M.D., Ph.D., Bodil S. Rasmussen, M.D., Ph.D., Johnny R.M. Lauridsen, M.D., Jane S. Nielsen, M.D., Anders Oldner, M.D., Ph.D., Ville Pettilä, M.D., Ph.D., Maria B. Cronhjort, M.D., Lasse H. Andersen, M.D., Ulf G. Pedersen M.D., Nanna Reiter, M.D., Jørgen Wiis, M.D., Jonathan O. White, M.D., Lene Russell, M.D., Klaus J. Thornberg, M.D., Peter B. Hjortrup, M.D., Rasmus G. Müller, M.D., Morten H. Møller, M.D., Ph.D., Morten Steensø, M.D., Inga Tjäder, M.D., Ph.D., Kristina Kilsand, R.N., Suzanne Odeberg-Wernerman, M.D., Ph.D., Brit Sjøbo, R.N., Helle Bundgaard, M.D., Ph.D., Maria A. Thyø, M.D., David Lodahl, M.D., Rikke Mærkedahl, M.D., Carsten Albeck, M.D., Dorthe Illum, M.D., Mary Kruse, M.D., Per Winkel, M.D., D.M.Sc., and Anders Perner, M.D., Ph.D., for the TRISS Trial Group® and the Scandinavian Critical Care Trials Group

Transfusion Requirements in Septic Shock: TRISS

Quick hitter:

1. Septic shock PRBC transfusion threshold of <7 g/dL and < 9 g/dL no different (1 unit vs. 4 units, on avg).

2. Fits with ProCESS, TRICC, recent GIB lit.

ICU Short Take

Meta-analysis: restrictive transfusion strategy is associated with lower rates of HCA infection. *JAMA* 2014;311:1317-1326.
Case 3

A 67 y/o man presents with new substernal chest pain, diaphoresis, and dyspnea x 2 hrs.

PMHx: DM, HTN, tobacco, obesity + OSA


EKG: atrial fibrillation, no ST segment changes

ER: ASA, nitro → CP free.

Troponin: 0.012 → 0.109 → 0.325
Which are true regarding ACS?

A. Clopidogrel is indicated even without PCI
B. High potency statin unlikely to be rx
C. Prescribing generic statin inc. adherence
D. Lifestyle changes can be life-changing...
E. I like them all
Comparative Effectiveness of Clopidogrel in Medically Managed Patients With Unstable Angina and Non–ST-Segment Elevation Myocardial Infarction

Matthew D. Solomon, MD, PhD,*† Alan S. Go, MD,*†‡ David Shilane, PhD,†
Derek B. Boothroyd, PhD,† Thomas K. Leong, MPH,* Dhruv S. Kazi, MD, MSc, MS,†‡§
Tara I. Chang, MD, MS,† Mark A. Hlatky, MD†

Oakland, Stanford, and San Francisco, California
EFFECTS OF CLOPIDOGREL IN ADDITION TO ASPIRIN IN PATIENTS WITH ACUTE CORONARY SYNDROMES WITHOUT ST-SEGMENT ELEVATION

THE CLOPIDOGREL IN UNSTABLE ANGINA TO PREVENT RECURRENT EVENTS TRIAL INVESTIGATORS∗

MACE dec from 11.4% to 9.3% w/ 9 m clopid.

Question: What is the real-world effectiveness of clopidogrel in ACS patients managed medically?

Design: Retrospective cohort study Kaiser N. CA

Patients: 16,365 patients w/ USA/NSTEMI managed medically, i.e. without PCI/CABG

1° Outcome: 2 year all-cause mortality, hospital stay for MI, adjusted composite of death/MI

Modern clopidogrel use...

USA 35% and NSTEMI 65%
Discharged on clopidogrel: only 36%
Mortality dec from 13.0% to 8.3%
Composite dec from 17.4% to 13.5%

Modern clopidogrel use...

Question: What is the real-world effectiveness of clopidogrel in ACS patients managed medically?

Design: Retrospective cohort study Kaiser N. CA

Patients: 16,365 patients w/ USA/NSTEMI managed medically, i.e. without PCI/CABG

1° Outcome: 2 year all-cause mortality, hospital stay for MI, adjusted composite of death/MI

Conclusion: Clopidogrel (underutilized) associated with lower risk of death or MI, esp if NSTEMI

Among 4340 acute MI patients:
Nearly 90% discharged on a statin, but...
Only 23% were prescribed high potency, e.g.
atorvastatin 80mg

*Circulation* 2014;129:1303-1309.
Among 90,111 Medicare patients starting a statin
If generic, more likely to be taking it and
Lower rates of clinical events! (NNT about 65)

Among 27,866 adults in NHANES rx a statin. Over time, statin users consume more fat and increased BMI more than non-users. Are we sending a clear message?
Among 4174 acute MI patients, HR for another MI
0: 1.0 (reference)
1: 0.60 (0.44 – 0.81)
2: 0.49 (0.36 – 0.67)
3: 0.38 (0.21 – 0.67)

Am J Cardiol 2014;113:1933-1940.
Which are true regarding ACS?

A. Clopidogrel is indicated even without PCI
B. High potency statin unlikely to be rx
C. Prescribing generic statin inc. adherence
D. Lifestyle changes can be life-changing…
E. I like them all
Look for atrial fibrillation in cryptogenic stroke: think 30 days or even longer. The yield is surprisingly high.


Misc. Short Takes

Increased sudden death when combining tmp/smx and ACEI/ARB. Don’t do it. *BMJ* 2014;349:g6196.

Practice Summary

Things to Do:

1. Screen for RV dysfunction in acute PE if lytics a consideration
2. If not giving lytics, consider LMWH vs. NOAC as more effective regimens (vs. UFH)
3. Use age-adjusted D-dimer in eval VTE
4. Don’t forget the ‘CURE-indication’ clopidogrel
5. Prescribe generic high-potency statins in ACS
Practice Summary

Things to Do, cont.:

6. Emphasize lifestyle changes in secondary prevention CAD: what to eat, how active to be, tobacco cessation
7. Look for atrial fibrillation in cryptogenic CVA
8. Limit transfusion to Hgb < 7.0 g/dL
Practice Summary

Things to Consider:

1. Limiting CVC placement by pursuing non-EGDT protocol resuscitation in severe sepsis / shock
Practice Summary

Things to Not Do:

1. Assume the IVC filter will be removed by well meaning future clinicians...make plans!
2. Vigorous head-banging
Thank you!

Melver.Anderson@va.gov