HFO in ARDS – IPDMA Results

EDITORIAL VIEW

Giacomo Bellani, MD, PhD
University of Milan-Bicocca
A.O. San Gerardo
Monza (Italy)
Conflicts of Interest

INSTITUTIONAL:

- Research grants from:
  - Draeger
  - Maquet
  - Airway Medix
  - Chiesi Farmaceutica, SPA

- Patent transferal to: Draeger

PERSONAL

- Consultancy fee from: Draeger
I know very little about HFO...

...and even less about Meta-analyses.

But if you cannot have what you like, you must like what you have!
Hello Giacomo,

Thank you for your message. 

you'll see that our data suggest:

1. HFO harms most patients with ARDS;  
2. HFO likely has a role in rescue therapy;  
3. HFO increases risk of barotrauma.

Those are the main points, for now.

More to come!
Maureen

sent from my iPhone

On Oct 21, 2015, at 5:17 PM, Giacomo Bellani <giacomo.bellani1@unimib.it> wrote:

Dear Dr Ma De,

it will be a privilege for me to give an editorial view on your trial and I look forward this occasion for meeting you personally. I hope I will be able to put together something decent.
HFO not effective on outcome.... A «physiology» paradox?


Protti et al., Crit Care Med, 2013
# Effectivness of «ARDS treatments»

<table>
<thead>
<tr>
<th>Intervention</th>
<th>PaO$_2$/FiO$_2$ ratio (mmHg)</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Tidal Volume</td>
<td>300 mmHg</td>
<td>NIH, NEJM 2000</td>
</tr>
<tr>
<td>Higher PEEP</td>
<td>200 mmHg</td>
<td>Briel, JAMA, 2010</td>
</tr>
<tr>
<td>Prone Positioning</td>
<td>150 mmHg</td>
<td>Papazian, NEJM, 2013</td>
</tr>
<tr>
<td>Neuromuscular Blockers</td>
<td>120 mmHg</td>
<td>Papazian, NEJM, 2013</td>
</tr>
<tr>
<td>HFO</td>
<td>70 mmHg</td>
<td>Meade, 2015</td>
</tr>
<tr>
<td>ECMO</td>
<td>?????</td>
<td></td>
</tr>
</tbody>
</table>
Higher vs Lower Positive End-Expiratory Pressure in Patients With Acute Lung Injury and Acute Respiratory Distress Syndrome

Systematic Review and Meta-analysis

In-hospital time to death

Patients with ARDS

HR, 0.85 (95% CI, 0.73-0.99); P = .03

Patients without ARDS

HR, 1.32 (95% CI, 0.87-2.00); P = .20

<table>
<thead>
<tr>
<th>Variable</th>
<th>Higher PEEP</th>
<th>Lower PEEP</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEEP, cm H₂O</td>
<td>15.3 (3.4)</td>
<td>9.0 (3.1)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>[n = 1053]</td>
<td>[n = 1051]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mild
Would $\Delta$ identify a subgroup of «responders»?
A strange «leaning curve»

Efficacy

Number of cases

Typical

HFO

WARNING!

Will self destroy after 3 pts!
Hello Giacomo,

Thank you for your message. You'll see that our data suggest:

1. HFO harms most patients with ARDS;
2. HFO likely has a role in rescue therapy;
3. HFO increases risk of barotrauma.

Those are the main points, for now.

More to come!
Maureen

sent from my iPhone

On Oct 21, 2015, at 5:17 PM, Giacomo Bellani <giacomo.bellani1@unimib.it> wrote:

Dear Dr Meade,

It will be a privilege for me to give an editorial view on your trial and I look forward this occasion for meeting you personally. I hope I will be able to put together something decent.

Me
Is HFO part of «real life»?

LUNG SAFE STUDY PRELIMINARY DATA
HFO has a role in rescue therapy

«HFO should be considered after proning»

Patients

Non-inclusion criteria:

1. Contraindication for prone positioning
   a. Intracranial pressure >30 mm Hg or cerebral perfusion pressure <60 mmHg
   b. Massive hemoptysis requiring an immediate surgical or interventional radiology procedure
   c. Tracheal surgery or sternotomy during the previous 15 days
   d. Serious facial trauma or facial surgery during the previous 15 days
   e. Deep venous thrombosis treated for less than 2 days
   f. Cardiac pacemaker inserted in the last 2 days
   g. Unstable spine, femur, or pelvic fractures
   h. Mean arterial pressure lower than 65 mm Hg
   i. Pregnant women
   j. Single anterior chest tube with air leaks

The NEW ENGLAND JOURNAL of MEDICINE

Prone Positioning in Severe Acute Respiratory Distress Syndrome

1434 were screened
858 were not eligible
HFO has a role in rescue therapy

- Rescue strategy
- Limited case volume
- Learning curve
- Need for patients’ centralization
HFO has a role in rescue therapy

HFO

ECMO

Enables transportation
Conclusions

- Congratulations
- Any better way to individuate «responders»?
  - HFO should not be part of the routine management of ARDS but...
  - ... It should be available in «tertiary» centers for ARDS
- HFO has a role as a rescue strategy but...
- ...will HFO will occupy this spot?