Intraoperative non-invasive monitoring of cerebral perfusion

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Is there a difference in intra-operative cerebral perfusion between younger and older Patients?
Monitoring

- EGC
- MAP (invasive or Finapress)
- FiO₂
- ETO₂
- SpO₂
- ETCO₂
- TCD
- NIRS (TOI)

- ET Sevoflurane
- Temperature
- Mx
- TOx
Anesthesia

- Standardized
  - Thiopenthal for induction
  - Sevoflurane
  - Fentanyl
  - Atracurium

- Patients
  - Group « young » 20 – 40 yrs old
  - Group « old » > 65 yrs old
## Results

<table>
<thead>
<tr>
<th></th>
<th>Group 18-40y (n=25)</th>
<th>Group &gt;65y (n=49)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABP (mmHg)</strong></td>
<td>83±11</td>
<td>78±11</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Temp (°C)</strong></td>
<td>36.1±0.4</td>
<td>35.7±0.4</td>
<td>0.002</td>
</tr>
<tr>
<td><strong>ETCO₂ (kPa)</strong></td>
<td>4.7±0.3</td>
<td>4.6±0.3</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Autoregulation - Mx

p=0.04
Tissue Oxygenation Index

$p=0.02$
Pitfalls?

\[ p < 0.001 \]
Pitfalls?

- Clinical relevance?
- Increase in Mx:
  - Change in autoregulation?
  - Arousal?
Problems
Problems
Thanks!!!!

- Peter Smielewski
- Melanie Gamberini
- Christoph Burkhart
- Ariane Rossi