COOL RCN

A Prospective, Randomized Trial Examining the Safety and Efficacy of Systemic Hypothermia for the Prevention of RadioContrast Nephropathy

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COOL RCN
Randomized Trial

Pts at risk for RCN (CrCl 20-50 mL/min)
Undergoing diagnostic and/or interventional cath with >50 cc dye
N = 400 pts at up to 35 sites

Hypothermia (33-34°C)
Pre contrast and 3 hrs post
+ Hydration (NaCl & NaHCO₃)

Control
Hydration (NaCl & NaHCO₃)

SCr measured at 24, 48 and 72-96 hrs* (core lab)
1º efficacy endpoint = RCN (SCr ↑>25% from baseline)
1º safety endpoint = 30d AE (death, MI, dialysis, VF, venous compl requiring surgery, bleed requiring ≥2U transf., rehosp.)

*Pts w/SCr ↑25% or ≥0.5 mg/dL at day 3 had an additional blood draw between day 7 – 10
136 pts randomized
between March 2006 and August 2007
Study terminated early due to financial insolvency of Radiant; Radiant assets were purchased by ZOLL Circulation, who funded completion of the study

- 136 pts randomized
- 73 pts normothermia
- 63 pts hypothermia
- 70 pts normothermia
- 128 pts evaluable
- 58 pts hypothermia

Sites did not turn in CRFs – 4 pts
4 pts – Withdrawn prior to initiating study procedures*

*Pul edema (1); IV diuretics (1); polycythemia (1); pt withdrew (1)
**Development of RCN**

- **Primary endpoint**
  - OR [95%CI] = 1.27 [0.53-3.00]  
    - P=0.59
  - OR [95%CI] = 0.83 [0.34-2.05]  
    - P=0.69
  - OR [95%CI] = 1.16 [0.51-2.67]  
    - P=0.71

- **Patients (%)**

- **Relative >25% ↑**
  - Normothermia (n=70): 18.6%
  - Hypothermia (n=58): 22.4%

- **Absolute >0.5mg/dL ↑**
  - Normothermia (n=70): 20.0%
  - Hypothermia (n=58): 17.2%

- **Absolute or relative ↑**
  - Normothermia (n=70): 21.4%
  - Hypothermia (n=58): 24.1%
<table>
<thead>
<tr>
<th>Event</th>
<th>Normothermia N=70</th>
<th>Hypothermia N=58</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality, all cause</td>
<td>1.4%</td>
<td>5.2%</td>
<td>0.22</td>
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<tr>
<td>AMI</td>
<td>1.4%</td>
<td>3.4%</td>
<td>0.45</td>
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<tr>
<td>Dialysis</td>
<td>2.9%</td>
<td>0%</td>
<td>0.50</td>
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<tr>
<td>Ventricular fibrillation</td>
<td>0%</td>
<td>0%</td>
<td>1.0</td>
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<tr>
<td>Venous compl. surgery</td>
<td>0%</td>
<td>0%</td>
<td>1.0</td>
</tr>
<tr>
<td>Bleeding transf. ≥2U</td>
<td>12.9%</td>
<td>6.9%</td>
<td>0.26</td>
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<tr>
<td>Rehospitalization</td>
<td>18.6%</td>
<td>22.4%</td>
<td>0.59</td>
</tr>
<tr>
<td>Composite adverse events</td>
<td>37.1%</td>
<td>37.9%</td>
<td>0.93</td>
</tr>
</tbody>
</table>
Conclusions

In pts at high risk for RCN undergoing invasive cardiology procedures hydrated with NS + NaHCO₃, systemic hypothermia using the Reprieve® system:

- May be safely achieved and is well tolerated
- Does not result in a significant reduction in RCN