A new phosphorus NMR spectrum can be obtained every five minutes, giving on-line, nondestructive measurement of high-energy and inorganic phosphates and intracellular pH. During pilot experiments, the hearts hung in air at 37°C and typically recovered 90% of left ventricular output after 20 min ischemia. However, we have now introduced a miniature temperature sensor (in the anoxic coronary perfusate) for core temperature control, thereby increasing the potential of the Langendorff perfusion model to support functional recovery at 37°C. We now report our early experiences with the Langendorff perfusion model utilizing the new phosphorus NMR methodology.

**Conclusion:** Integrilin, a potent platelet inhibitor, to manage ischemic complications of PTCA does not seem to be associated with more severe bleeding with later CABG or more frequent transfusions.

**Final comments:** Additional study is warranted to further confirm these findings.

---

**References:**


**Tables:**

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Median (25th, 75th percentiles)</th>
<th>Mean (±SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRBC units</td>
<td>44</td>
<td>20.0 (14.5, 26.9)</td>
<td>20.0 (±2.4)</td>
</tr>
<tr>
<td>FFP units</td>
<td>44</td>
<td>0.0 (0.0, 0.0)</td>
<td>0.0 (±0.0)</td>
</tr>
<tr>
<td>platelet units</td>
<td>44</td>
<td>0.0 (0.0, 0.0)</td>
<td>0.0 (±0.0)</td>
</tr>
<tr>
<td>Bl</td>
<td>44</td>
<td>9.0 (6.0, 10.0)</td>
<td>9.0 (±1.0)</td>
</tr>
<tr>
<td>MI</td>
<td>44</td>
<td>10.0 (7.0, 13.0)</td>
<td>10.0 (±1.0)</td>
</tr>
</tbody>
</table>

**Figure:**

A new phosphorus NMR spectrum can be obtained every five minutes, giving on-line, nondestructive measurement of high-energy and inorganic phosphates and intracellular pH. 

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**Abbreviations:**

- CABG: Coronary artery bypass grafting
- PTCA: Percutaneous transluminal coronary angioplasty
- PCI: Percutaneous coronary intervention
- CPB: Cardiopulmonary bypass
- NMR: Nuclear magnetic resonance
- PCR: Phosphocreatine
- Hgb: Hemoglobin
- Hct: Hematocrit
- MI: Myocardial infarction
- CI: Cardiac index
- WU: Work unit
- Bl: Blood loss

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**Appendix:**

A detailed report of this study is available upon request.

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**Acknowledgments:**

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**Authors:**

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