# [abstract] INTRAVASCULAR MICROBUBBLES USED FOR SUCCESSFUL TREATMENT OF RIGHT-TO-LEFT CIRCULATORY SHUNTS IN THE LUNG



Lundgren, CEG
Bergoe, GW
Olszowka, A
Logue, G
Tyssebotn, I

2006-08-01T21:11:37Z
2006-08-01T21:11:37Z
1999
Undersea Hyp Med 1999
http://archive.rubicon-foundation.org/847
Undersea and Hyperbaric Medical Society, Inc. (http://www.uhms.org )

We have tested the hypothesis that intravascular volume-stablized microbubbles in combination with O2 breathing can improve arterial and issue O2 and CO2 levels in a right-to-left shunt condition. Steel beads of approximately 1 mm diameter were injected into the trachea of fourteen anesthetized pigs until enough bronchioles were blocked to reduce the PaO2 during air breathing from 70-80 to below 30 mmHg and increased PaCO2 to over 70 mmHg. The shunt fraction increased from 0.18 to 0.62. Oxygen breathing alone increased the PaO2 to no more than 70 mmHg while the PaCO2 remained elevated. During the O2 breathing, a dodecaflouropentane (DDFP) emulsion (EchoGen SONUS Pharmaceuticals, Inc., Seattle, WA), serving as a source of microbubbles, was given at 0.1 ml/min until a total of 50ul of DDFP had been administered. Five minutes after the start of the infusion, the PaO2 began to increase and PaCO2 to fall, reaching hyperoxic values and normocapnia after 15 min. The effect was stsrained for 3 hours whereafter the EchoGen dose was repeated which reestablished favorable O2 and CO2 levels. A third dose of EchoGen was given with the same results, the only difference being that the beneficial change in PaO2 and the duration of this change was more marked than earlier. During EchoGen infusions, muscle PO2 and PCO2 appropriately matched the arterial values. Blood pressures and heart rate were normal over the entire time period. Complement activation and platelet chages occurred when the shunt was applied, but did not progress during infustion of the DDFP emulsion. We conclude that the employment of

stabilized intravascular microbubbles, combined with oxygen breathing, may completely reverse the deterioration in arterial gas status brought about by severe right-to-left circulatory shunting in the lung. Acknowledgement: This project was supported in part by SONUS Pharmaceuticals, Inc., Seattle, WA.

Undersea and Hyperbaric Medical Society, Inc. (http://www.uhms.org )

CO2

carbon dioxide

air

[abstract] INTRAVASCULAR MICROBUBBLES USED FOR SUCCESSFUL TREATMENT OF RIGHT-TO-LEFT CIRCULATORY SHUNTS IN THE LUNG

# Files in this item

| Files | Size | Format | View |
|---|---|---|---|
| abstract.txt | 259bytes | Text file | View/Open |

### This item appears in the following Collection(s)

- UHMS Meeting Abstracts
  This is a collection of the published abstracts from the Undersea and Hyperbaric Medical Society (UHMS) annual meetings.