Simultaneous Administration of Inhaled Nitric Oxide in Two Children With Pulmonary Hypertension

To the Editor:

We administered inhaled nitric oxide (NO) in two children with postoperative pulmonary hypertension after surgical repair of congenital heart defects. Different concentrations of NO, varying from 0.1 to 10.0 ppm, were administered simultaneously to these patients using the same chemiluminescence analyzer (CLD 700 AL, Eco Physic; Dürnten, Switzerland) for the measurement of NO and nitrous oxide (NO₂). Each patient received NO through an H-type cylinder and a flowmeter (316 ST; Matheson Gas Products; Montgomeryville, Pa), which were connected to the inspiratory limb of continuous flow, time-cycled, pressure limited ventilators (Sechrist IV-100B [Sechrist Industries GMBH; Steinen, Switzerland], Babylog 5000 [Dräger; Lubeck, Germany]). As shown in Figure 1, analyses of NO and NO₂ concentrations were checked every hour by respiratory therapists in the alternate patient by switching the valve toward the second mechanical ventilator.

Although the need to simultaneously administer NO in more than one patient actually may be uncommon, it may become more frequent as the indications in postoperative heart patients as well as in children with ARDS are increasing.¹ We found this way of administering NO to be safe and effective. It may also maximize resource utilization, as the cost ($35,000) for a chemiluminescence analyzer is high.

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REFERENCE

¹ Demirackça S, Dotsch J, Knothe C, et al. Inhaled nitric oxide in neonates and pediatric acute respiratory distress syndrome:

Pleural Alkaline Phosphatase in Separation of Transudative and Exudative Pleural Effusions

To the Editor:

We read with interest the report by Tahaoglu et al.² (June 1994) who conclude that pleural alkaline phosphatase (PAP) and the ratio of pleural fluid to serum alkaline phosphatase (P/SAP) are both useful in differentiating between pleural exudates and transudates.

We evaluated the PAP, P/SAP, pleural protein, pleural lactate dehydrogenase (LDH), serum LDH, pleural protein/serum protein, and pleural LDH/serum LDH in 57 patients (76 with exudates and 21 with transudates).

From the results of the present study, applying the criteria of Light et al.² 90 of 97 patients were correctly classified (accuracy 93%). The sensitivity and specificity for an exudate were calculated at 97% and 75%, respectively. The mean±SD PAP concentration was 55.7±39.06 UI/L in the transudates while it was 121.35±136 UI/L for all exudates. The mean±SD P/SAP ratio was 0.20±0.09 in the transudates and 0.53±0.70 for exudates. Similarly, in other studies,¹² for PAP and P/SAP parameters, the differences between the mean values of the transudate group and the exudate group were statistically significant (p<0.001). For PAP, the cutoff point of 45 UI/L yielded the best results. Using this cutoff level, 74 of 97 effusions were correctly classified. This yielded an accuracy, sensitivity, and specificity (for exudate) of 76%, 86%, and 40%, respectively. Reading the P/SAP ratio, the value that best differentiated between transudates and exudates was 0.15 with an accuracy, sensitivity, and specificity of 79%, 89%, and 37%, respectively (Table 1). It may be observed that PAP and P/SAP have lower sensitivity, specificity, and accuracy than the criteria of Light et al.² We conclude that the measurement of PAP and P/SAP offers no advantages, and the criteria of Light et al² remain the best method for distinguishing between pleural exudates and transudates, as we recently have suggested.¹⁴

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Table 1—Usefulness of Different Analyses in the Diagnosis of Exudative Effusions

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Sensitivity, Specificity, Accuracy</th>
<th>PPV¹</th>
<th>NPV¹</th>
</tr>
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<tbody>
<tr>
<td>Light et al criteria²</td>
<td>97*</td>
<td>75*</td>
<td>93*</td>
</tr>
<tr>
<td>PAP &gt;45 UI/L</td>
<td>86*</td>
<td>40*</td>
<td>76*</td>
</tr>
<tr>
<td>P/SAP &gt;0.15</td>
<td>89*</td>
<td>37*</td>
<td>79*</td>
</tr>
</tbody>
</table>

¹Significantly lower than criteria of Light et al² (p<0.001).

¹PPV=positive predictive value; NPV=negative predictive value.