Room air ABG measurement revealed a pH of 7.43, Pco₂ 30 mm Hg and Po₂ 76 mm Hg (92 percent saturation). Electrolyte levels were within normal limits, with a serum bicarbonate of 22.5 mEq/L. Chest roentgenogram revealed new diffuse interstitial and alveolar infiltrates (Fig 1).

The patient was admitted and treated with intravenous fluids, oral diphenhydramine and acetaminophen therapy. He defervesced quickly, blood pressure stabilized at 100/68 and dyspnea resolved. Antibiotic therapy was withheld, in anticipation of bronchoscopy should symptoms recur. Twenty-four hours after admission, temperature increase to 39.5°C (oral) with a mild, diffuse headache prompting a lumbar puncture, which was negative. Arterial blood gas levels revealed improved oxygenation (pH 7.43, Pco₂ 32 mm Hg, and Po₂ 89 mm Hg on room air). Serial chest roentgenograms showed rapid clearing of the diffuse infiltrates (Fig 2). The remainder of his hospital course was uneventful, with discharge two days later off medication.

Adverse reactions to trimethoprim-sulfamethoxazole in AIDS patients, including fever, rash, and GI side effects, have been documented in the past.15 We feel our patient suffered a reaction similar to that described by Silvestri et al, resolving quickly without specific therapy. Cardiak manifestations of this reaction appear to be: 1) drug re-exposure; 2) rapid development of pulmonary infiltrates, dyspnea, and hypoxemia; 3) acute fever; 4) hypotension; 5) erythematous rash, and 6) rapid resolution after drug discontinuation. Re-exposure to TMP/SMX can indeed mimic progression of the underlying pulmonary infection, presenting the clinician with a difficult diagnostic problem, and may result in a life-threatening reaction.

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**The Challenge of Bilateral Bronchopleural Fistula**

To the Editor:

Bilateral bronchopleural fistula is a severe condition and its treatment is a difficult challenge to the physician. Loss of inspired tidal volume through the fistula can lead to hypoxemia and hypercapnia due to impaired intrapulmonary distribution of ventilation and CO₂ wash out.¹ PEEP can become useless since large air leaks dissipate it.² Besid this, ordinary methods used in management of unilateral bronchopleural fistula can be unable to maintain oxygenation.

We propose a system to assist alveolar ventilation during respiratory support in patients presenting bilateral bronchopleural fistula.

A 38-year-old man was admitted to the Emergency Room after a road accident. On admission he was hypotensive, cyanotic, dyspnecic, sweating profusely, with massive subcutaneous emphysema and decreased respiratory sounds in the left hemithorax. An underwater sealed chest drain was promptly inserted in the left hemithorax at the third intercostal space level in the midaxillary line, followed by nasotracheal intubation and mechanical ventilation. Right subclavian vein catheterization was performed without technical difficulty in order to allow central venous pressure monitoring and fluid administration.

A large air flow was seen through the underwater sealed drain, but his respiratory and hemodynamic condition remained unchanged. Chest x-ray examination showed a small (less than 25 percent) pneumothorax and multiple fractures of ribs in the left side and a massive right-sided pneumothorax. Therefore, an additional underwater sealed chest tube was inserted in the right hemithorax.

In spite of a large airflow noted in both chest bottles, the patient's clinical condition did not improve and arterial blood gas levels were: pH 7.08, Pco₂ 80 mm Hg and Po₂ 39 mm Hg on a FiO₂ of 0.6. Additional PEEP did not improve oxygenation and HFPPV using the Bennet MA I ventilator with a non compliant tubing as proposed by some authors led to a further increase in Pco₂ and acidemia despite an increase in Po₂ (Pco₂ 60 mm Hg, Pco₂ 87 mm Hg, pH 7.01 on FiO₂ 0.4).

Arterial blood pressure was 80/50 mm Hg (despite therapy with dopamine, 15 mcg/kg/min.) and the patient was oliguric (about 20 ml of urine/hour) with tachycardia (130 bpm) and cold extremities. A balloon-tipped floating thermomodule catheter was inserted through the right subclavian vein for cardiac output and hemodynamic data determination. Cardiac output (measured by triple injections of iodized normal saline solution with temperature less than 1°C was 2.8 L/min; systemic and pulmonary vascular resistance (calculated through conventional formulas) were respectively 2,200 dynes/cm² and 450 dynes/cm².
A device for equalization of pleural pressure with the PEEP level settled into ventilator (10 cm H2O) was built by connecting an empty bottle to each pleural drain and a PEEP valve to the open port of the bottles. The patient's cardiovascular function improved markedly, urinary output increased and, after 60 min of ventilation using the device, arterial blood gas measurements showed an impressive improvement: PCO2 decreased to 40 mm Hg, Fio2 increased to 130 mm Hg and pH to 7.44. Table 1 summarizes the hemodynamic data with the device and before its use.

During the next eight days the level of PEEP in the ventilator and chest drains was gradually reduced and, at the 12th day, extubation was performed. Three days later, the chest tubes were removed without any further deterioration in the patient's clinical condition. He was discharged home fully recovered 40 days after admission.

Large bronchopleural fistulas are life-threatening conditions, and bilateral become much more distressing. Management by methods such as independent lung ventilation,6 HFFPV, etc., is generally unsuccessful. Sequential bronchial occlusion with a balloon-tipped catheter,7 metal plug8 or tissue glue9 may lead to bilateral lung atelectasis, increased venous admixture and risk of infection. The use of continuous suction can further increase the air leak through the fistula since, with this technique, we raise transpulmonary pressure (airway pressure minus intrapleural pressure), which is the major determinant of bronchopleural fistula flow. For this reason, continuous suction should be avoided.10 Furthermore, attaching suction to the open port of the chest bottles can cause an additional increase in air leak and loss of a large portion of the delivered tidal volume.6 Equalization between PEEP and pleural pressure as described herein was highly effective and promptly improved oxygenation, CO2 clearance and hemodynamic parameters. Although this method was first used by Downs in the mid 1970s for treatment of unilateral bronchopleural fistula,11 we were not able to find any case of bilateral bronchopleural fistula treated by this manner in the English literature.

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6 Cant WF, Tinker JH, Tarhan S. Bronchial blockade in a child with a bronchopleural cutaneous fistula using a balloon-tipped catheter. Anesthes Analg 1976; 55:874-75

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Long-term Antiarrhythmia Therapy

To the Editor:

In the August, 1988 issue, we described a patient with refractory sustained ventricular tachycardia and ventricular fibrillation who responded only to oral bretylium therapy (Chest 1988; 94:430-32). At the time of acceptance of the article he had done well for a total of nine months. However, at the end of the eleventh month of therapy the patient developed progressive anorexia and weight loss. This was felt to be due to the oral bretylium therapy; the patient was admitted to the hospital and oral bretylium discontinued. He was monitored continuously for a period of one week, during which time he had virtually no spontaneous ectopy, nor was any provoked during exercise tolerance test. The patient declined electrophysiological testing and has done well over the past several months on no antiarrhythmic therapy. This illustrates that the arrhythmic substrate can change over time and suggests that even seemingly intractable arrhythmias associated with acute myocardial infarction may resolve and antiarrhythmic agents discontinued in selected individuals.

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Sputum Retention

To the Editor:

I believe that sputum retention is being overlooked in large numbers of patients with COPD and pneumonia, and that this contributes to the substantial morbidity and mortality in these illnesses. Retained sputum is difficult to diagnose on auscultation. Sputum plugging usually occurs without atelectasis on chest x-ray film because atelectasis is a late phenomenon. Hypoxemia is ascribed to the underlying pulmonary disease. COPD patients have difficulty clearing sputum because of narrowed airways and impaired mucociliary clearance. This sputum becomes more tenacious as it remains uncleared. Older, dehydrated or debilitated patients with pneumonia may have difficulty raising thick sputum. Intubated patients may have plugs beyond the reach of the suction catheter. Routine

Table 1— Hemodynamic Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Before equalization</th>
<th>After equalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>2.8 L/min</td>
<td>4.1 L/min</td>
</tr>
<tr>
<td>WP</td>
<td>19 mm Hg</td>
<td>13 mm Hg</td>
</tr>
<tr>
<td>CVP</td>
<td>24 cm H2O</td>
<td>16 cm H2O</td>
</tr>
<tr>
<td>BP</td>
<td>80/50 mm Hg</td>
<td>130/70 mm Hg</td>
</tr>
<tr>
<td>PVR</td>
<td>450 dyn•cm²</td>
<td>400 dyn•cm²</td>
</tr>
<tr>
<td>SVR</td>
<td>2200 dyn•cm²</td>
<td>960 dyn•cm²</td>
</tr>
</tbody>
</table>

CO = cardiac output; WP = wedge pressure; CVP = central venous pressure; PVR = pulmonar vascular resistance; SVR = systemic vascular resistance