

in this population group. In a recent discussion of cost containment in critical care, it was stated that in the UK cost containment requires a strategy that includes "developing explicit criteria for refusing admission to patients presenting with certain diagnostic categories (such as hematologic malignancy with respiratory failure) . . ." [3].

During the last 18 months, 50 patients underwent high-dose chemotherapy with autologous stem cell transplantation in our institution: 4 required ICU care. The patients' details are given in Table 1.

Of these patients, 2 survived and currently have a good performance status (Karnofsky 80–100%). Each of the survivors had only one organ failure, i.e. lung failure. There is obviously great concern among clinicians as to whether aggressive therapy for acute respiratory failure following bone marrow transplantation is indeed justified, or whether it is simply a prolongation of an almost certain therapeutic failure. The increasing use of high-dose chemotherapy as adjuvant therapy in various malignancies will lead to more frequent request for ICU admissions in this patient group. We feel that the cases presented here indicate that decision on foregoing aggressive therapy in this patient group should be made on an individual basis rather than formulating a general rule for this diagnostic category.

Isolated respiratory failure, rather than multiple organ failure may be a prognostic indicator of favorable outcome.

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### **Rapidly reversible acute cor pulmonale after intravenous injection of crushed dextromoramide (Palfium) pills**

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Sir: Acute cor pulmonale (CP) with major right ventricular (RV) dilatation, has been documented in adult respiratory distress syndrome (ARDS) [1]. Producing progressive left ventricular (LV) filling impairment through ventricular interdependence, this RV enlargement usually

**Table 1** Details of the four patients who needed care in the ICU

Patients	1	2	3	4
Diagnosis	Breast cancer	Hodgkin disease	Breast cancer	Breast cancer
Indication for BMT	Adjuvant consolidation	Responding relapse	Adjuvant consolidation	Stage 4 in complete remission
Etiology of ARF	Chemotherapy toxicity	Sepsis	Diffuse alveolar hemorrhage	Bilateral pseudomonas pneumonia
Involved organs	Lung, liver heart, kidney	Lung, liver kidney	Lung	Lung
SAPS	16	23	15	14
Ventilatory assist	Intubation	Intubation	Intubation	CPAP mask
Worst $P_aO_2/FIO_2$	115	150	150	76
Outcome	Dead	Dead	Alive	Alive

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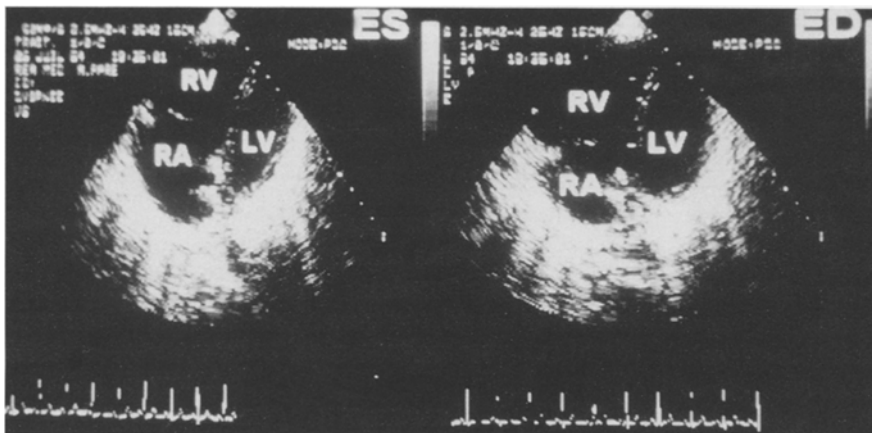
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leads to refractory circulatory failure [2]. The present case report of a rapidly reversible acute (CP) in an ARDS patient seems to temper this statement.

A 27-year-old white man known to be an heroin addict was admitted to our hospital because of acute dyspnea. He stated that 1 h before admission he had given himself an intravenous injection of 30 crushed dextromoramide (Palfium) pills, which was rapidly followed by progressive respiratory distress. On examination, the patient was dyspneic, his respiratory rate was 30/min, nail beds were cyanotic, blood pressure was 100/60 mmHg and heart rate 140/min. Inspiratory crackles were heard at both lung bases and a positive hepatojugular reflux was observed. Temperature was 37.1 °C. An electrocardiogram showed sinus tachycardia at a rate of 145/min with negative T-waves in V1–2–3 leads and a right shift of the QRS axis (+100°). Blood gas analysis while the patient was breathing room air indicated that the  $P_aO_2$  was 45 mmHg,

the  $P_aCO_2$  28 mmHg, and the pH 7.45. X-ray films of the chest revealed a slight diffuse interstitial pattern and suggested dilatation of the main pulmonary artery. Laboratory blood tests revealed hyperleukocytosis (white cell count was 16 100 with 84% neutrophils). Urinysis showed the presence of opioids.

*Doppler echocardiography* showed a marked RV and atrial dilatation (Fig. 1). RV end-diastolic (ED) and end-systolic (ES) areas (A) on a four-chamber view were 15 cm<sup>2</sup>/m<sup>2</sup> and 13 cm<sup>2</sup>/m<sup>2</sup> respectively, with a fractional area contraction of 13%, whereas associated LV size reduction resulted in a RVEDA/LVEDA ratio of 1.4. The interventricular septum showed the abnormal motion pattern usually associated with RV pressure overload. Inferior vena caval diameter, measured on a subcostal view M-mode examination, was increased (15 mm/m<sup>2</sup>), suggesting increased CVP. Using continuous-wave Doppler examination, pulmonary artery systolic pressure was estimated



**Fig. 1** Two dimensional echocardiographic study (four-chamber view) showed marked enlargement of the right atrium (RA) and right ventricle (RV) at both end-systole (ES) and end-diastole (ED), while the left ventricular (LV) cavity was clearly reduced

from a moderate tricuspid regurgitation to approximate a value of 45 mmHg. Except in the reduction of LV dimensions, LV function was normal.

The patient's symptoms improved rapidly with O<sub>2</sub> given by nasal tube, and in less than 48 h arterial blood gas analysis, chest X-ray, electrocardiogram, and Doppler echocardiography had normalized completely.

Dextromoramide is a synthetic analgesic with actions similar to those of morphine. The potential deleterious action of opioid intoxication on breathing is well known and is related to its respiratory depressant effects or to acute pulmonary edema secondary to alveolar-capillary membrane leak [3].

This case report is unusual for several reasons. First, total normality of consciousness on admission, while respiratory distress was already clinically evident, suggested that a very small amount of drug had passed into the systemic blood. Actually, the major part of dextromoramide had probably been trapped in the pulmonary arterial circulation, since the size of the pieces of pill did not allow them to cross the capillary network.

Second, the early appearance of acute signs of CP while pulmonary edema was still moderate probably resulted from direct mechanical obstruction of the pulmonary circulation. This initial obstruction was undoubtedly aggravated by hypoxic arteriolar vasoconstriction and vascular occlusion associated with alveolar-capillary membrane lesions [4].

Third, marked RV dilatation was reversible within 48 h. In a previous study

in 23 ARDS patients [1], we individualized a subgroup of 5 patients in all of whom such a dilatation, defined by a RVEDA/LVEDA above 1 on an apical four-chamber view, was associated with fatal outcome and was consistent with a previously reported concept [2]. Thus, in contrast to the situation in massive pulmonary embolism [5], in ARDS we used to consider marked RV dilatation indicative of an extremely poor prognosis. The present case report seems to temper this statement.

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## Gastrobronchial fistula: report of an unusual case

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Sir: Gastrobronchial fistula is a rare disease, only 17 cases of which have been described. It is usually associated with traumatism, abscesses, esophagogastric surgery, neoplasms and heterotopic pancreatic tissue [1–4].

## Case report

A 71-year-old man with no previous history of illness was admitted to the emergency ward complaining of right thoracic pain and fever. A chest radiograph showed a right lung abscess and empiric treatment with cefotaxime and clidamicin was begun. After admission, the patient presented hypotension and respiratory arrest, requiring intubation and mechanical ventilation; he was then transferred to the I. C. U. A chest X-ray showed a right pleural effusion. Thoracocentesis disclosed purulent material and a drainage tube was inserted; the culture yielded mixed flora. After ICU admission and while the patient was sedated, a marked gas drainage through the nasogastric tube was detected. On the basis of suspected of abnormal communication between the airway and the digestive tube, samples of gastric gas and gas from ventilator inspiratory tubing were obtained simultaneously in plastic syringes; the samples were immediately analyzed for PO<sub>2</sub> in an ABL 30 apparatus (Radiometer, Copenhagen). The PO<sub>2</sub> was 248 mmHg in the gastric sample and 245 mmHg in the ventilator sample. The FIO<sub>2</sub> set in the ventilator was 0.35. Bronchodigestive fistula was suspected, and a fiberoptic bronchoscopy and fiberoptic gastroscopy were performed. The former did not disclose abnormalities, latter revealed two perforations at the gastric fundus, and bubbling of gas during each ventilator insufflation was observed. Pathologic exam disclosed chronic gastritis. A thoracoabdominal CT-Scan was performed (Fig. 1), showing a abnormal communication between left lung parenchyma and gastric fundus. The pa-