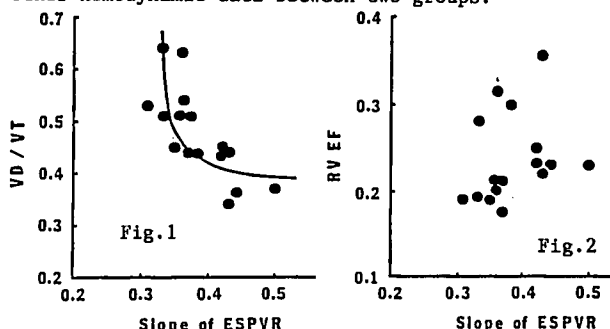


TITLE: ACCURATE ASSESSMENT OF RIGHT HEART FUNCTION IN ACUTE RESPIRATORY FAILURE
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Since right ventricular ejection fraction (RVEF) is highly dependent on afterload, the depressed RVEF in acute respiratory failure may not indicate RV pump failure. The ability of RV to maintain adequate distribution of pulmonary perfusion may remain unchanged despite severe depression of RVEF as long as RV contractile function is not depressed. We tested this hypothesis by assessing the correlations between RVEF and end-systolic pressure-volume relation (ESPVR), and between the physiological dead space to tidal volume ratio (VD/VT) and the RV ESPVR.

Included were 16 patients suffering from acute respiratory failure. RVEF was measured by thermo-dilution technique. RV end-diastolic volume index (RVEDVI) was obtained from the stroke volume index (SVI) divided by EF. RV end-systolic volume index was calculated as the difference between RVEDVI and SVI. Pulmonary artery diastolic pressure was used as an estimate of RV end-systolic pressure (1). Data were collected at baseline and after one or two alterations in preload to define RV ESPVR line. Intrapulmonary shunt fraction (Qs/Qt) was calculated by use of the standard equation. VD/VT was calculated by the Enghoff modification of the Bohr equation, and corrected for the effect of gas compression and the dead space effect of Qs/Qt.

There was a hyperbolic curvilinear relationship between VD/VT and the slope of ESPVR line ($r=.903$, $p<.0001$) as shown in Fig.1. No correlation was found between VD/VT and RVEF. Also, there was no correlation between RVEF and the slope of ESPVR line (Fig.2). The patients were divided into two groups based on the slope of ESPVR line, to evaluate the effect of other hemodynamic data on the ESPVR. Comparison of the two groups revealed that VD/VT was significantly lower in the group with a high slope of ESPVR ($p=.002$). There was no difference in other hemodynamic data between two groups.



These data suggest that in acute respiratory failure RVEF does not reflect RV performance, raising questions concerning its use as an independent index of RV contractility.

Reference: 1. Am J Cardiol 54:132, 1984

A265

TITLE: PA CATHETER INTRODUCERS: DO THE COMPONENT PARTS AFFECT FLOW RATE?
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INTRODUCTION: The Arrow percutaneous sheath introducer allows infusion of large fluid volumes in hemodynamically unstable patients. Without a CVP or PA catheter in place, an airtight obturator should be inserted to prevent inadvertent air embolus^{1,2}. The extent that the obturator impedes flow through the system is not clear. Also not clear is whether any changes might be reversed by shortening the obturator. The purpose of this study, therefore, was to determine the magnitude, if any, of these changes in flow.

METHODS: A complete sheath introducer has three components: sheath, sideport, and obturator. Five component configurations (C) were tested: C1) sheath only, no side port; C2) sheath and side port, no obturator; C3) sheath and side port, obturator inserted through hemostasis valve; C4) same as C3, but obturator cut to 1.5 inches; C5) same as C3 but obturator cut to 0.25 inch. One liter of water was hung 36 inches above the assembly and connected to it by 0.25 inch vinyl tubing. The time (T) for the water to drain was measured with a stop watch and the amount was measured (V). Flow = V/T (x) 60. V and T were measured 5 times with each C and flow was

compared using ANOVA and Tukey's Honestly Significant Differences test. Differences were considered significant if $P<0.05$.

TABLE: FLOW RATES (ml/min)

	C1	C2	C3	C4	C5
Mean	838.1	238.4	149.9	176.0	232.5
SEM	± 11.2	± 9.2	± 7.9	± 14.0	± 5.5
• Significant difference from C 1,3,4 ($P<0.0001$)					
• Significant difference from all other C					
• Significant difference from C 1,2,5 ($P<0.0001$)					

RESULTS: Flows are listed in the table. Flow was significantly reduced by C2 and an additional 100ml/min by C3. Flow was not increased by C4, but was significantly increased by C5. Flow in C5 was comparable to C2 but less than C1.

DISCUSSION: Despite the statistical significance of the increase in C2 and C5 over C3 and C4, the actual increase is modest (25-50%) in comparison to that noted in C1 (250%). Therefore, we do not recommend removing or cutting the obturator to improve maximum flow rates. If very large flow rates are necessary, we recommend removing the side arm until smaller flows are adequate.

REFERENCES:

- 1) Anesth Analg 83: 871, 1984.
- 2) Anesthesiology 69: 284, 1988.
- 3) Anesthesiology 67: 573, 1987.