Pulsus Paradoxus in Anaphylactic Shock due to Urokinase Administration

To the Editor:

Pulsus paradoxus is an exaggerated response to the normal respiratory variation in arterial pulse. During inspiration, the capacitance of the lung to accept blood volume is increased in conjunction with a decrease in venous return and filling pressure in the left heart, resulting in a fall in left ventricular stroke volume and systolic blood pressure.1 Common etiologies include cardiac tamponade, chronic constrictive pericarditis, pulmonary embolus, chronic obstructive pulmonary disease, hypovolemia, and cardiac failure.2 We report a case of pulsus paradoxus associated with hypovolemia provoked by an anaphylactic reaction to urokinase infusion.

This patient, scheduled for outpatient chemotherapy for breast cancer, was given 10,000 IU of urokinase for occlusion of her Hickman subcutaneous port (Davol, Salt Lake City). She complained of nausea, became hypotensive, and suffered cardiac arrest. Cardiopulmonary resuscitation (CPR) was initiated; atropine and ephedrine were administered, and the patient was intubated. With continued CPR, her pulse returned; she was given vasopressors, which increased her systolic blood pressure to 90 to 100 mm Hg. Diphenhydramine and hydrocortisone were given intravenously for presumed anaphylaxis. After transfer to the intensive care unit, the patient was noted to have pulsus paradoxus by cuff pressure and on the arterial pressure tracing (Fig 1). A negative pulmonary angiogram ruled out pulmonary embolus, and two-dimensional echocardiography was negative for pericardial effusion or other abnormalities. Ventilatory support was discontinued, and the pulsus paradoxus resolved. The patient experienced a full recovery and was discharged four days later.

The fall in blood pressure during the episode of anaphylactic shock was thought to be due to a decrease in venous return and decreased cardiac output, making anaphylactic shock with its relative hypovolemic state another possible cause of the phenomenon of pulsus paradoxus.

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REFERENCES

On Being Fair to the Pulmonary Artery Catheter

To the Editor:

I read with interest in the December 1990 issue of Chest the article by Zion et al.1 regarding the use of pulmonary artery catheters in patients with acute myocardial infarction. In an accompanying editorial, Dalen4 concluded that the pulmonary artery catheter has not been shown to be of benefit to the patient with acute myocardial infarction. This conclusion comes of asking a “wrong” question of a retrospective trial which lacks an appropriate basic design for accurately assessing the possible benefits that may accrue from the use of a pulmonary artery catheter. Dr Dalen would likely agree that the interpretation (or misinterpretation) of data derived from a pulmonary artery catheter will determine whether any further change of treatment ordered on the basis of these data is appropriate. Wrong decisions based on misinterpretation of data obviously cannot be expected to produce benefits.

The recent report of variability in physicians’ knowledge and interpretation of the data derived from a pulmonary artery catheter (wherein roughly half the physicians in the study were unable to

![Figure 1. Arterial waveform demonstrating pulsus paradoxus.](http://journal.publications.chestnet.org/pd/access.ashx?url=/data/journals/chest/21639/ on 04/28/2017)