Intermittent Positive-Pressure Breathing

To the Editor:

Why the continued confusion over the issue of intermittent positive-pressure breathing (IPPB) as related to therapeutic benefits? Welch's communication in response to the article by Loren et al comparing simple nebulization and IPPB in asthmatic children fails again to identify specific criteria for therapy with IPPB. Welch and Loren are both correct in identifying the ineffectiveness of therapy with IPPB at 10 cm H2O, as compared to simple aerosol therapy; however, Welch relates to tidal volume (TV) as the common indicator. Therapy with IPPB, as compared to Freon-propelled nebulizers, pneumatic nebulizers, ultrasonic nebulizers, etc, is no more effective than any other when relating to a measurement of TV.

For years, we have cited as one of the clinical indications for therapy with IPPB that of "deep pulmonary aerosol therapy." "Deep" does not imply volumes at tidal breathing levels. Therefore, the only indication (criterion) for the effective use of therapy with IPPB should be to produce a greater maximal inspiratory volume than can be spontaneously produced by the effort of the patient (unassisted).

Twenty-three asthmatic children were studied using therapy with IPPB at 10 cm H2O and hand-held Freon-propelled nebulizers. The article by Loren et al does not even refer to inspiratory volumes delivered via either method. Undoubtedly, the young patients provided spontaneous inspiratory volumes of equal measurements during both modes of therapy; and, therefore, IPPB was not even indicated as a method of improving upon therapeutic response to bronchodilator therapy.

We continue to relate therapy with good old IPPB to pressure in centimeters of water, instead of inspiratory volume, and compare IPPB to methods with entirely different criteria. Pressure is only being used as the means of attaining increased volume and, unless volumes are directly measured, is the only measurable means of adjusting therapy. When we begin to use "volume" as the quantitative measurement, we will then be able to justify the continued use of therapy with IPPB for specific clinical conditions, i.e., the inability of the patient to spontaneously take a deep breath.

David W. Robbins, R.R.T.
Director of Respiratory Therapy
and Cardiopulmonary Services
Coral Gables Hospital, Coral Gables, Fla

REFERENCES

To the Editor:

Robbins' comments appear to be in full agreement with what I have previously stated. The confusion appears to be over my use of the term, tidal volume (TV), while in reality we are talking about inspiratory capacities. When a patient is receiving therapy with intermittent positive-pressure breathing (IPPB), it is common to refer to the volume moved on the ventilator as the patient's "TV." This practice is incorrect, since when we are administering therapy with volume-oriented IPPB, the volumes moved are positive-pressure assisted inspiratory capacities. I would totally agree that this volume must be compared to the patient's maximal spontaneously generated inspiratory capacity for the objective assessment of whether we are meeting the goal of giving the patient a deeper breath. As I have recently spelled out in a discussion of IPPB used after surgery, and as others have recently been advocating, the only rational approach to utilization of IPPB is through a volume-oriented approach with the specific goal of each treatment in mind.

If the respiratory therapists who administer these treatments and the physicians who order them begin to individualize the therapy with IPPB to the specific needs of each patient, it will be possible to identify those who would benefit from such therapy. At the same time, we could decrease the large number of treatments where the therapy is of dubious value.

Meloin A. Welch, Jr., R.R.T., Program Director
School of Respiratory Therapy
UCLA Hospital-Santa Monica College, Los Angeles

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