Breathing and Feeling: Capnography and the Individually Meaningful Psychological Stressor

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This article briefly discusses capnography and the use of individually meaningful psychological stressors (IMPS) to provoke episodes of acute hyperventilation. Guidelines are provided on history taking, and a strategy for using IMPS with ongoing capnographic monitoring is described, together with a proposal for diagnostic criteria. Diagnosis of hyperventilation using IMPS and capnography can help to demonstrate that feelings, breathing, and symptoms are all interlinked, and may help to suggest appropriate targets for therapy.

Descriptor Key Words: capnography in psychotherapy; breathing and feelings; stress and breathing; capnography in diagnosis of stress disorders; hyperventilation and stress.

This article is intended to address issues concerning the use of capnography when considering feelings, and particularly the relevance of the individually meaningful psychological stressor (IMPS). Such a consideration may be necessary because physiological measures of resting levels of end-tidal CO2 and voluntary hyperventilation recovery rates may not be adequate diagnostic criteria to identify some patients who episodically experience acute periods of hyperventilation.

The techniques described here were developed to help understand what might be happening to a patient who reports that “Yesterday I had a terrible panic attack (attack of palpitations/dizziness/visual disturbance, etc.), although today I feel fine.” How can we find out what happened to the patient yesterday? Recent research (Freeman, Conway, & Nixon, 1986; Conway, Freeman, & Nixon, 1988) has used hypnosis to explore with sub-

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jects events of individual psychological significance, while monitoring end-tidal CO$_2$. The strategy of using hypnotic recall of earlier experiences was frequently successful in reproducing spontaneous episodes of hyperventilation in the laboratory.

To the author’s knowledge there is no standardized psychological stressor that has been reported to discriminate reliably those patients who apparently produce acute hyperventilation in everyday settings. Two earlier studies, carried out before the emergence of infrared end-tidal CO$_2$ analyzers, deserve a mention here. Stevenson and Ripley (1952) used an experimental group made up of asthma and anxiety patients and discussed with each subject “various topics and attitudes known to be of relevance to his life and illness” while monitoring with a pneumograph. They found that alterations in respiratory pattern during periods of emotion were observed in all subjects. Dekker and Groen (1956) demonstrated that it was possible to reproduce in the laboratory attacks of asthma by exposing patients to individually meaningful psychological stimuli.

This article is concerned with the identification of individually meaningful psychological stressors (IMPS) without the use of hypnosis, and is intended to provide some suggestions and guidelines for clinicians and researchers.

It is likely that a sizable proportion of hyperventilation patients will have a traumatic life event preceding onset of symptoms (see for example Lazarus & Kostan, 1969), and emotional suppression is probably an important part of the process that leads to hyperventilation (see Conway, 1991, 1994). History taking may best proceed by asking very open-ended questions. Rather than asking “How long have you been getting palpitations?” it may be more beneficial to ask: “If we go back to the very start of your problems, where do you see the beginning of things going wrong?” When questioning is of the latter kind, the respiratory response as well as the verbal answer is often illuminating. A typical response to this question might be for the patient to take a very deep breath, sigh, and then say: “Well, I suppose the start of everything going wrong was when my Mum died.” Whatever the answer to this question, it is worthwhile to consider inquiring specifically about emotional traumas preceding the onset of symptoms. Additionally, it is advisable to ask patients if they know why they have the problem, as occasionally they do know very well what the problem is about, but may need prompting to discuss it. It is also appropriate to ask patients what they are afraid might be wrong, as it is helpful to identify misinformation and catastrophic cognitions at this early stage.

For capnography with these patients, in clinical settings, there are few hard and fast rules. One strategy would be to take a history first, watching for signs of changes in respiration, and subsequently carry out the capnog-