Author’s response: spontaneously breathing patients get tension pneumothorax

In my brief letter I did not mean to imply that Leigh-Smith and Harris found the case reports they cited as unconvincing, merely that I did not find it convincing that supra-atmospheric pleural pressure was the main explanation for the clinical condition of these patients. The ill patients in the cases cited by Leigh-Smith and Harris and reported by others—allegedly have either serious underlying lung disease, significant trauma or other problems. The index case they refer to, for example, had fallen three storeys down a lift shaft and in addition to a large pneumothorax had a ruptured spleen, left pulmonary contusion and lumbar and pelvic fractures. Patients with such multiple problems are likely to tolerate a large pneumothorax and consequent hypoxaemia badly and drainage of the pneumothorax is of course a vital part of their management.

I think that common usage and understanding takes ‘tension’ to imply that in tension pneumothorax the adverse physiological consequences are as a result of supra-atmospheric pressures. The BTS guidelines reflect this belief. The fact remains that intra-pleural pressure cannot exceed atmospheric pressure during inspiration and always does during expiration (or intercostal drainage of pneumothoraces would not work). There may be merit, as Leigh-Smith and Harris suggest, in retaining the expression tension pneumothorax to signify a large rapidly expanding pneumothorax causing severe physiological consequences but the risk is that retaining the word tension will perpetuate the misunderstanding that high pressures are the cause of this. We could of course retain the expression but use tension with one of its alternative meanings in that a tension pneumothorax would be one that can and should induce feelings of tenseness or anxiety in the medical attendant but this may not be a particularly productive way to approach medical terminology.

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We believe that previous definitions of tension pneumothorax are of limited use because measurement of IPP is impractical, the extent of radiological mediastinal shift is variable and hypotension occurs uncommonly in spontaneously breathing patients. We would therefore like to rehighlight a clinical definition for tension pneumothorax as being ‘tension pneumothorax that results in significant respiratory or haemodynamic compromise (the latter especially in ventilated patients) that reverses on thoracic decompression alone.2

While acknowledging that ventilated patients usually present at the point of decompression, in contrast to spontaneously breathing patients who normally present during a variable period of compensation, we believe that the term ‘tension pneumothorax’ should continue to be used for both conditions. The one word ‘tension’ immediately alerts the clinician to potential decompression and the need for expedient investigation (ie, radiography or ultrasound) and/or thoracic decompression.

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