

Letter to the Editor

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'Breathing Pattern in Tetraplegic Patients': reply to the Author

Our study published in the February issue of this journal demonstrates an association between neck pain and postural hypotension in subjects with spinal cord injury. The results show that one of the main factors influencing frequency and severity of such pain is muscle exertion. This logically includes respiratory effort which in tetraplegic subjects, for the reasons mentioned by Dr Frisbie in his letter, causes a greater demand for oxygenated blood in relatively unconditioned neck muscles. Interestingly, our study described a tetraplegic subject in whom neck pain was triggered by disconnecting the ventilator to encourage spontaneous breathing. An altered breathing pattern, therefore, might contribute to neck pain in tetraplegic subjects. Whether this could depend on increased demand (because of neck muscle exertion) or reduced availability of oxygenated blood (because of impaired pulmonary function) or a combination of both factors, can only be postulated upon. The possible contribution to neck pain has not been quantified. In our study, the characteristics of neck pain in spinal subjects were comparable to those reported in postural hypotension caused by pure autonomic failure and multiple system atrophy.^{1,2} In these conditions the breathing pattern is not impaired. Moreover, the mechanism proposed by Dr Frisbie does not

apply to subjects with high thoracic lesion or long-standing recumbency that also had, in our study, neck pain related to postural hypotension. All these observations suggest that pulmonary function might be a contributing, but not essential factor. A large study using a standard quantitative measure of neck pain in tetraplegic subjects with conditioned and unconditioned neck muscles could provide better information.

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References

- 1 Mathias CJ, Mallipeddi R, Bleasdale-Barr K. Symptoms associated with orthostatic hypotension in pure autonomic failure and multiple system atrophy. *J Neurol* 1999; **246**: 893–898.
- 2 Bleasdale-Barr KM, Mathias CJ. Neck and other muscle pains in autonomic failure: their association with orthostatic hypotension. *J R Soc Med* 1998; **91**: 355–359.