

THE AUTHORS' REPLY

FURTHER COMMENTS ON THE VALIDITY OF NECK STIFFNESS AS A RISK FACTOR FOR DEATH FROM TETANUS

Re.: "Identification of risk factors for death from tetanus in Pernambuco, Brazil: a case-control study"

Recife, March 22, 2001

Sir,

We would like to thank Dr. Nishioka for his careful reading and comments on our paper entitled "Identification of risk factors for death from tetanus in Pernambuco, Brazil: a case-control study"¹ published in this journal. There is no doubt that a critical appreciation of the results of a scientific paper is of fundamental importance for the progression of scientific knowledge.

Concerning the point raised on his correspondence, whether neck stiffness was a predictor of death from tetanus, we would like to call the attention to some points to be taken into account. The first one is that to identify risk factors for death from tetanus we worked with three different sets of variables. The first group of variables was related to tetanus progression and was composed by a set of factors that could be assessed on admission. The second group of variables, in which neck stiffness was included, concerned the presence or absence of certain signs/symptoms in the first 24 hours of hospitalization, and the third one was related to complications from tetanus. It means that neck stiffness could be observed either by the doctor responsible for the patient's admission, or within the following 24 hours, by the doctor responsible for the patient's care. The length of observation, 24 hours, decreases, but surely does not exclude, the possibility of under-registration.

We agree with Dr. Nishioka's opinion that, generally speaking, severe cases tend to be better documented as to clinical findings and laboratory tests than milder cases. However, in our study, the patients who subsequently developed complications and/or died, would not necessarily be considered as severe cases within the first 24 hours following admission, when neck stiffness was registered. Thus, for these patients to which the recording of neck stiffness was made before clinical criteria of severity was present, the latter condition could not influence the identification of neck stiffness.

Another aspect is that, as we mentioned in our paper¹, several clinical classifications of the severity of tetanus use the presence and intensity of dysphagia^{2,3,4,5}. We discussed in our article¹ that the description of neck stiffness generally refers to the contraction of the muscles behind the neck with the limitation or restriction of head movement. In the case of tetanus this postural stiffness can be accompanied by the contraction of other group of neck muscles. This restriction may interfere in swallowing movements and/or in the "protection" of the air passages against the aspiration of secretions. In this particular case hyperextension of the neck may contribute to bronchial problems and increase the risk of death. From this point of view, dysphagia may be part of a group of factors which make up the neck stiffness variable and which may, in a sense, be associated with mortality by allowing the appearance of a greater number of complications.

Finally we do not disagree that neck stiffness may be relatively common in patients with generalized tetanus. Under-reporting of neck stiffness may have occurred in our work, but, if it has, it is more likely that mild, rather than severe neck stiffness, would not be registered. We are not certain, as suggested by Dr. Nishioka, that the recognition and registration of neck stiffness was dependent on the clinical severity of the disease. We would say that our study¹ offers some evidence that at least severe neck stiffness may be a predictor of death from tetanus. In other studies, specially in those in which the patients are selected prospectively, this factor should be considered, to confirm, or not, this finding.

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