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The following 'letter to editor', written by myself and the immediate past president of the Irish Chiropractic Association, was recently published in the Irish Medical Journal.

http://www.imj.ie/news_detail.php?nNewsId=3050&nVolId=1_10

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Editor
Dissection of Vertebral Artery

Sir - We read with interest the research correspondence titled 'Dissection of Vertebral Artery' in the February, 2003 issue of the IMJ. During the introduction of that paper the authors state, "Among common causes (of vertebral artery dissection VAD) are structural defect of arterial wall connective tissue disease, serious road traffic accident, chiropractic manipulation of the neck, and idiopathic."

Although vertebral artery dissection is a well recognised cause of posterior circulation stroke, and in one case- control study (1) chiropractic manipulation was weakly associated with VAD in those under 45 years of age, we disagree that chiropractic manipulation of the neck has been established as a common cause of VAD.

Put very simply, the nature of the studies carried out to date, do not allow attribution of causation.

For example, to date, published studies linking VAD to neck manipulation have been predominantly case reports and small case series. Very few observational studies have been published and those that have, like the survey of consultant neurologists previously published in the IMJ (2), attempted to attribute causation to chiropractic visits retrospectively and without objective assessment of exposure in an appropriate control group. Even in a recent Canadian study, which attempted to apply a rigorous protocol in diagnosing strokes, those responsible for collecting data related to exposure were blinded to neither the diagnosis nor the outcome. (3)

To definitively determine the nature of any relationship that may exist between chiropractic neck manipulation and VAD large prospective studies will be necessary. However, prospective studies of such a rare event could prove extremely difficult and time consuming.

Moreover, recent research (4) from the University of Calgary in Canada suggests that chiropractic neck manipulation results in strains to the vertebral artery that are almost an order of magnitude lower than the strains required to mechanically disrupt it. The authors of that study have suggested that under normal circumstances, a single typical (high-velocity/low-amplitude) chiropractic manipulation is very unlikely to mechanically disrupt the vertebral artery.

Other than appropriate temporal relationship and biological plausibility, one of the criteria that must be met in order to assign causation is the presence of a dose-response relationship. A recent study (5), published in the journal of Neurology, retrospectively reviewed medical legal cases of stroke temporally associated with cervical spine manipulation. The authors concluded that there was no apparent dose-response relationship and that, "Stroke represents an infrequent adverse reaction associated with cervical spine manipulation therapy."

Two events may be temporally associated for reasons other than the possibility that one has caused the other. The relationship between chiropractic neck manipulation and VAD deserves further investigation.

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