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We read with great interest the recent report by Lyders and Morris[1] of their case of spinal cord infarction following lumbar transforaminal epidural steroid injection. We would like to highlight the fact that not all corticosteroid preparations are associated with the same risk of embolization.[2] There are 4 types of corticosteroid preparations commonly administered in clinical practice: methylprednisolone acetate (MPA), triamcinolone acetonide, betamethasone acetate, and dexamethasone sodium phosphate (DSP). The first 3 of these corticosteroid preparations are insoluble microcrystalline suspensions with varying potential to aggregate into larger particulates. Individual crystal sizes can range from 20 to 150 μm, which compares with an average red blood cell size of 7.5 μm. DSP, on the other hand, is completely soluble and clear of particulates at high-magnification microscopy.

A recently published in vivo animal study has compared the effects on the central nervous system (CNS) of the intra-arterial passage of insoluble MPA versus soluble DSP.[3] This demonstrated that all animals that received MPA had serious neurologic sequelae and required ventilatory support. None of the animals that received an intra-arterial injection of soluble DSP had noticeable deficits.

On the basis of the current best evidence in the literature (case reports, animal experimentation, and in vitro microscopy), we suggest no longer performing transforaminal injections (cervical, thoracic, or lumbar) with insoluble corticosteroid preparations.[2] We suggest using only DSP for these procedures. We believe this reduces, if not removes, the risk of CNS embolization during the procedure.

The only potential negative aspect of using DSP is the lack of data on the long-term efficacy of DSP compared with insoluble corticosteroids. A recent publication suggests there is no significant difference in the short term.[4]

References

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