too early in the course of brain death may confound the process of brain death declaration.  $^{\rm 4}$ 

The patient's movements that initiated the request for the CBF study in this case are well-known in brain death.<sup>3,5</sup> The movements may occur spontaneously or in response to stimulation, such as painful stimuli to the sternum, and are thought to be mediated at the level of the spinal cord. Such movements have included the tonic neck reflex, arm raising, and lateral head turning, similar to those observed in this patient.

We present this case to emphasize the potential difficulties that may be encountered in the evaluation of brain death. Whether to declare brain death in these rare situations is controversial, with some authorities claiming the CBF study to be a false-negative<sup>6</sup> and others claiming that a CBF study showing residual perfusion is inconsistent with brain death.<sup>7</sup> Physicians who deal with brain death should be aware of this possible dissociation of cerebral perfusion and the clinical brain death examination.

## References

- 1. Flowers WM Jr, Patel BR. Persistence of cerebral blood flow after brain death. South Med J 2000;93:364–70
- 2. Wijdicks EFM. Determining brain death in adults. Neurology 1995;45:1003–11
- Wijdicks EFM. Clinical diagnosis and confirmatory testing of brain death in adults. In: Wijdicks EFM, ed. Brain Death. Philadelphia, Lippincott Williams & Wilkins; 2001:61–90
- Larar GN, Nagel JS. Technetium-99m-HMPAO cerebral perfusion scintigraphy: considerations for timely brain death declaration. J Nucl Med 1992;33:2211–13
- Saposnik G, Maurino J, Bueri JA. Movements in brain death. Eur J Neurol 2001;8:209–13
- 6. Flowers WM Jr, Patel BR. Accuracy of clinical evaluation in the determination of brain death. *South Med J* 2000;93:203–06
- 7. Bernat JL. **On irreversibility as a prerequisite for brain death determination.** *Adv Exp Med Biol* 2004;550:161–67

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## Radiation Worker Mortality: Intersociety Call for Survey Participation

Most physicians who use fluoroscopy during interventional procedures are aware of colleagues with cervical or lumbar spine problems. Previous surveys of interventional cardiologists and radiologists suggest a significant prevalence of orthopedic problems, very likely due, at least in part, to our work environment: long hours of wearing lead aprons and the awkward positions we sometimes must assume to treat patients.<sup>1-3</sup> In addition, concern has been raised over possible radiation-related risks, including cancer and cataracts.<sup>4-6</sup>

To clarify the magnitude and impact of these occupational health concerns, the Society for Cardiac Angiography and Intervention (SCAI), the Society of Interventional Radiology (SIR), the Heart Rhythm Society (HRS), and the American Society of Interventional and Therapeutic Neuroradiology (ASITN) have formed a Joint Intersociety Working Group. This group is collaborating with the Radiation Epidemiology Branch of the National Cancer Institute (NCI) to perform several epidemiologic studies of the physician members of our societies. We need your help with these projects.

The first study that concerns you directly is a survey that all current members of the 4 societies (SCAI, SIR, HRS, ASITN) will be asked to complete. This survey will ask questions about your radiation work history and your health history as it pertains to work-related musculoskeletal disorders and radiation-related diseases. The results will be compared with a nonexposed group of physicians who do not work in an interventional environment and to the general population. All of the proposed studies have been approved by the leadership of each society, and all will be conducted with the review, approval, and supervision of the NCI Institutional Review Board. Your data will be provided the full privacy safeguards afforded to participants in NCI research studies. No individuals will be identified in the reports resulting from these studies. Your data will be collected by a nongovernmental third party, and all identifiers will be removed before data analysis.

When the survey is ready, each society will publicize it to their membership and make it available on its Website. You may also receive the survey in the mail. Please complete it and return it. The results will be of great importance and will benefit us all.

Why go to all this effort? If our work environment is causing us injuries, then it must be modified, but this change will not happen unless we can demonstrate that the problem is real. Scientifically valid results will be obtained only if there is a very high response rate to the survey. This is why we need your help.

## References

- Ross AM, Segal J, Borenstein D, et al. Prevalence of spinal disc disease among interventional cardiologists. Am J Cardiol 1997;79:68–70
- Machan L. A web-based survey of neck and back pain amongst interventional radiologists. Presented at: Annual Meeting of the Society of Cardiovascular and Interventional Radiology; March 3–8, 2001; San Antonio, Tex
- 3. Goldstein JA, Balter S, Cowley M, et al. Occupational hazards of interventional cardiologists: prevalence of orthopedic health problems in contemporary practice. *Catheter Cardiovasc Interv* 2004;63:407–11
- 4. Finkelstein MM. Is brain cancer an occupational disease of cardiologists? *Can J Cardiol* 1998;14:1385–88
- Vano E, Gonzalex L, Beneytez F, et al. Lens injuries induced by occupational exposure in non-optimized interventional radiology laboratories. *Br J Radiol* 1998;71:728–33
- Junk A, Haskal ZJ, Machan L, et al. Cataract in interventional radiology: an occupational hazard? Paper presented at: Annual Meeting of the Society of Interventional Radiology; April 21, 2004; Phoenix, Ariz

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