

## Research Update

### Eye-opening cataract study shows routine tests unnecessary

Blood counts, serum electrolyte measurements and electrocardiograms are routinely ordered for patients undergoing cataract surgery. Now new research from the US has found that these tests do not offer patients any medical benefit (*N Engl J Med* 2000; 342:168-75). “The study shows quite definitively that there is no role for routine medical testing for patients who are scheduled for routine cataract surgery,” says lead investigator Dr. Oliver Schein, professor of ophthalmology at the Wilmer Eye Institute at the Johns Hopkins Medical Institute.

“Common practice is to simply say, ‘OK, the patient is scheduled for surgery. The patient needs a history, physical and lab tests.’ The history and the physical are still necessary but the lab tests offer no benefit,” he notes.

Researchers at 9 medical centres throughout the US randomly assigned more than 19 000 patients scheduled for cataract surgery into 1 of 2 groups. One group received pre-operative testing and the other did not. All medical complications that occurred over the 7-day period following surgery were recorded.

No significant differences were found between the 2 groups in terms of events during or after the operation. For events during the operation, patients who underwent testing had 19.7 events per 1000 operations, compared with 19.2 for the group without testing. For events following the operation, the testing group had 12.1 events per 1000 operations while the no-testing group had 12.6. Serious medical events were very rare in both groups, and the overall rate

of complications was similar, at 31.3 events per 1000 operations. In addition, researchers found no benefit to testing when the results were analysed by the patients’ age, sex, race or existing medical conditions.

“We recommend that tests be ordered only when the history or a finding on physical examination would have indicated the need for a test even if surgery had not been planned,” Schein says.

The results, he adds, may apply to most routine surgery. “We only studied cataract surgery, but there have been a lot of smaller studies over the years that relate to other non-major surgeries that have looked at the benefit of testing. They virtually all say the same thing — there is no benefit to testing.” — *Donalee Moulton, Halifax*

### Tuned in to the human voice

Human beings have a wonderful ability to recognize voices, even voices they haven’t heard for years, and they can easily and accurately interpret a great deal of information about people from their voices, including sex, approximate age and emotional state. But little is known about the way the brain performs these neuronal feats.

Cognitive neuroscientist Pascal Belin has identified several regions of the superior temporal sulcus (STS) that are activated by the human voice (*Nature* 2000;403:307-12). Using functional magnetic resonance imaging, Belin and colleagues at the Montreal Neurological Institute demonstrated that areas of this deep fissure of the temporal lobe are much more active when test subjects listen to human voices than to other sounds. “This study increases our knowledge of the auditory cortex,” says Belin, adding that the function of the

STS was unknown until now. “It also draws an important parallel with face perception, because the voice is the face of the auditory system. Research on face perception is a hot topic now, and I think this discovery will stimulate a similar amount of research into the organization of the auditory brain.”

Sixteen normal adult men and women were scanned during silence or while listening passively to various stimuli. Vocal stimuli included not only words and sentences in different languages, but also nonspeech vocalizations such as laughter, sighs and coughs. Nonvocal stimuli included animal cries and natural and mechanical noises. Scanning showed that the voice-selective regions found bilaterally along the upper bank of the STS showed greater neuronal activity when subjects listened to vocal sounds than to nonvocal sounds.

In a second part of the experiment,

the subjects listened to control sounds of human origin such as finger snaps and to scrambled and filtered vocal sounds in order to characterize the response of the voice-sensitive regions to modifications of the acoustic structure of voice. “This allowed us to demonstrate that the ‘voice area’ is really selectively activated by voice, and is not simply responding to particular acoustic components that might be found in other sounds as well,” says Belin.

This research might help increase understanding of how the human brain evolved, he suggests. “Whereas speech is unique to humans, the ability to perceive the voice and analyse the sounds made by other members of the same species is something we share with a lot of other animals, and it is likely that voice-selective areas exist in the brains of closely related primates.” — *Janice Hamilton, Montreal*