

Facial and auditory nerve study for acoustic neuroma surgery

Purpose of the study

You have been diagnosed with an acoustic neuroma (a tumour of the auditory nerve) which is to be treated surgically. Before the operation, we will study the function of your facial and auditory nerves. This will involve electroneuromyography (ENMG) of the facial muscles and brainstem auditory evoked potential (BAEP) test of your auditory nerve. During the operation, the activity of the same nerves will be monitored in an effort to prevent new nerve injuries from occurring. ENMG will be done before the operation and about one month afterwards.

Preparing for the study

- **Make an appointment at your local health centre**, where a nurse can examine your ears before the study and clean or rinse out the ear canals if necessary. The ear canals must be clean because wax build-up can distort the results of the BAEP.
- If you are using anticoagulation medication, please mention it at the beginning of the study.
- Please do not apply moisturizer or make-up on your face on the day of the study. The study will be harder to do if you have oils or cosmetics on your skin. A technologist will also wipe your face with a cleanser shortly before adhesive pads are applied for the study.

Facial ENMG (electroneuromyography)

A nerve conduction velocity test will be performed to study the nerve connections in your facial area. Small measuring pads will be applied to your skin over several facial muscles. Electrical impulse will be used to stimulate the facial nerve near the angle of your jaw and the resulting muscle activation is recorded with the monitoring equipment. Individual electrical impulses are very short. This part of the test takes about 20 minutes.

In addition, we will use a thin needle to study your facial muscles. The needle study only takes a few minutes for each muscle. Usually 3 to 5 muscles are studied, so ENMG generally takes only 30 to 45 minutes overall.

BAEP (brainstem auditory evoked potential)

In addition to the facial nerve study, we will perform BAEP test which measures the activity of the nerve pathways between the ear and the brainstem.

You will be required to lie on your back and stay as relaxed as you can during the test. A technologist will attach the measuring sensors to your forehead and plug-like earphones will be inserted into each of your ears. Sound stimuli (clicking and noise) will be played in one ear or the other in turn and responses stimulated by the clicking will be measured using the sensors on your forehead and the earphones. The study is painless and takes a little less than an hour.

After the study

The results will be forwarded to the surgeon and will also be used to create an appropriate nerve monitoring plan for the operation. The results will also be compared to the outcome after the operation so that possible changes can be evaluated.