

Using latest evoked auditory potential technology to assess hearing thresholds of a difficult-to-test adult

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## Background

### **Patient basic information:**

Adult; cognitive impairment; vision impairment. No verbal language, no expressive language. Communication depends on writing instructions.

### **Previous audiological assessment**

Play audiometry was attempted; patient could NOT be conditioned.

No audiometric thresholds were obtained in play audiometry.

At that time sedated ABR was recommended by physician.

### **Assessment plan at Vancouver General Hospital:**

Instead of using sedated ABR, latest evoked auditory potential technology, Integrity 500 G2, was used to assess patient's hearing thresholds.

## Method

### **Setup**

Two channel electrode montage were placed, as shown in Figure 1. (Photo permission was obtained.)



Figure 1: Electrodes montage

**Environmental conditions:**

Regular office room (non sound booth); 2 active cell phones

**Impedance check:** Excellent as shown in Figure 2.

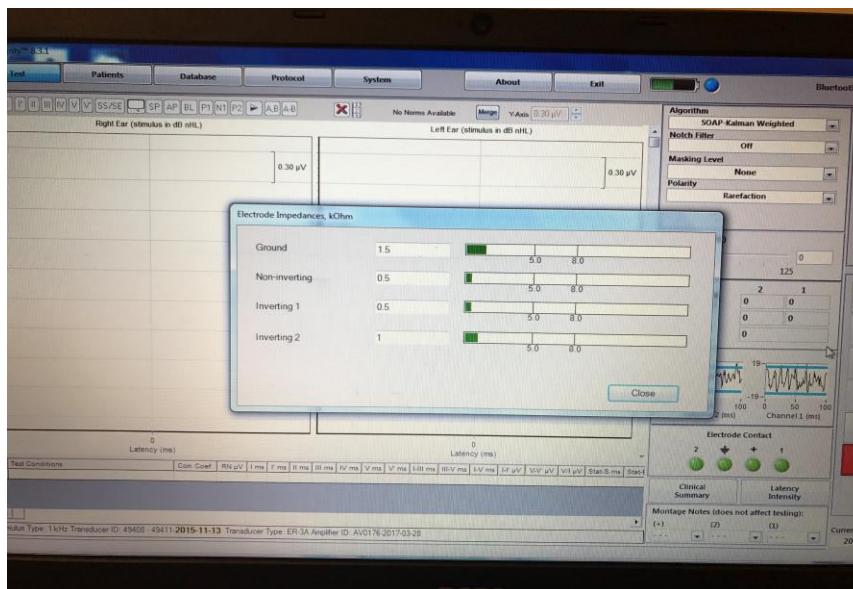


Figure 2: Impedance Check

## Results:

Hearing thresholds at 500, 1000, 2000 and 4000 Hz were obtained bilaterally as shown in Figures 3 & 4

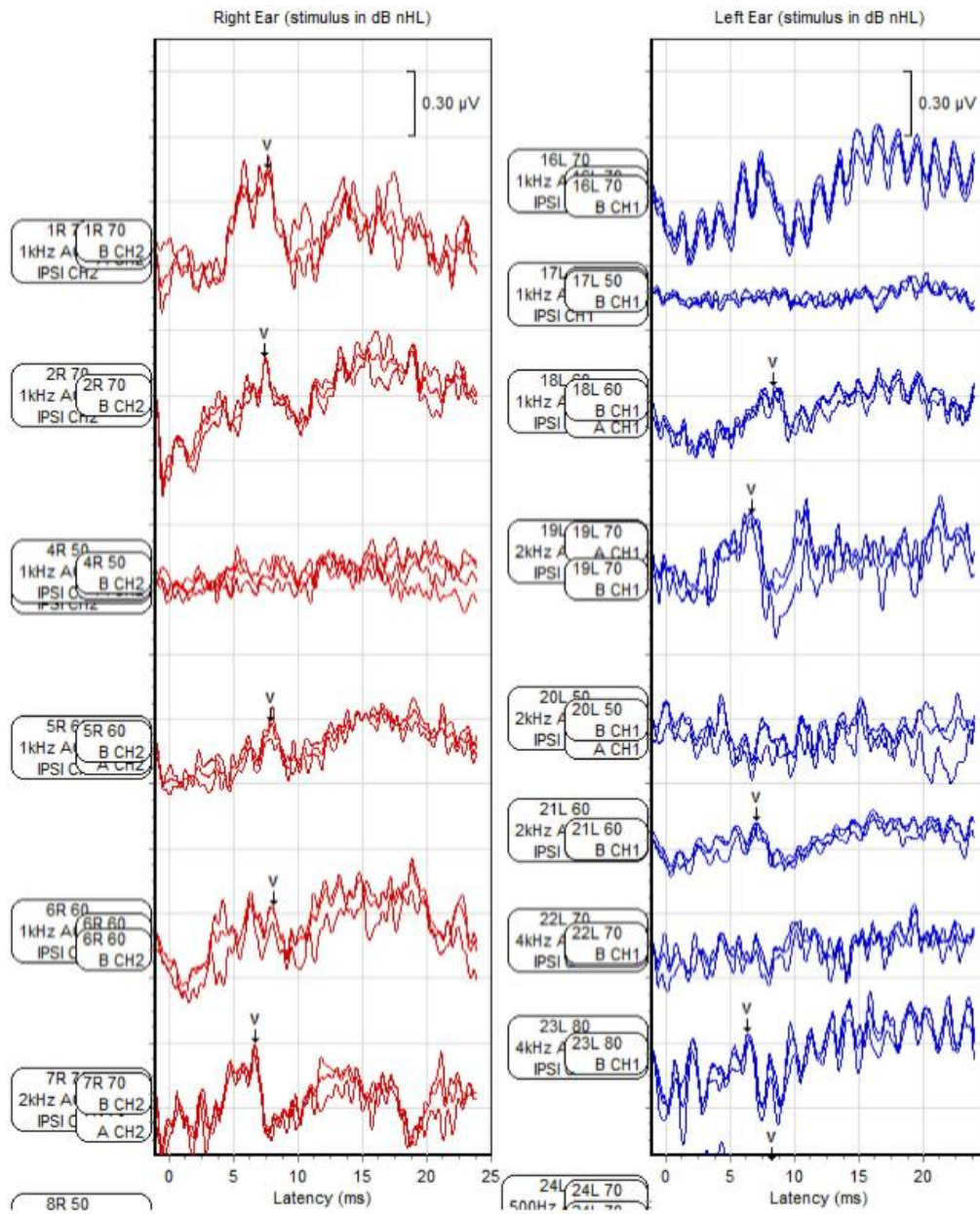


Figure 3: hearing thresholds results

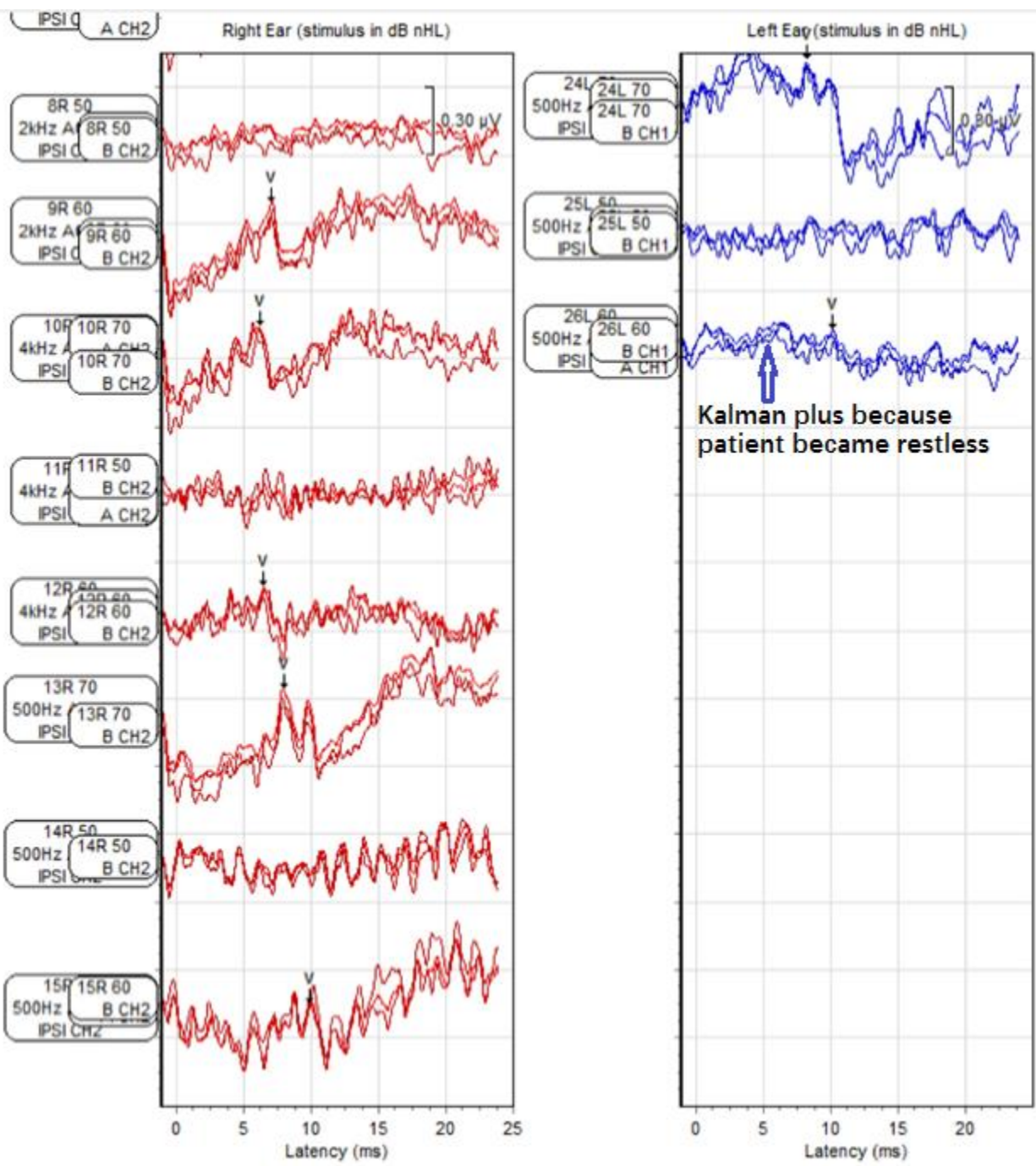


Figure 4: Hearing thresholds results

## Testing time:

Actual testing time: 55 minutes

session one: 40 minutes, including setup time

Break: 10 minutes

Session two: 15 minutes

## Impressions:

We have successfully used Vivosonic Integrity G1 system for hearing threshold assessment in difficult-to-manage adults. A Global TV news was available on Youtube:

<https://www.youtube.com/watch?v=tiyUa-JheyY>

Compared to G1, G2 has following features:

1. **Fast.** Using G1 system, it typically takes 1.5 to 2 hours to complete 8 frequencies assessment for both ear. We could complete the same number of tests within 1 hour using G2 system.
2. **Perform well within electrically hostile noisy environments due to the new design of Vivoamp .**