TABLE 1. Speed of Thermoelastic Pressure Wave Propagation in Cat Brain Derived From Time-Delay Measurements

Measurement of distance (cm)	No. of samples (n)	Speed (mean ± SD, m/s)
2.5 - 3.0	4	1463.75 ± 4.79
3.5 - 4.0	11	1532.78 ± 22.12
4.0 - 4.5	6	1554.92 ± 10.79
4.5 - 5.0	13	1498.03 ± 22.52
5.0 - 5.5	23	1531.33 ± 15.40
5.5 - 6.0	7	1531.09 ± 21.58
Total	64	1522.77 ± 28.45

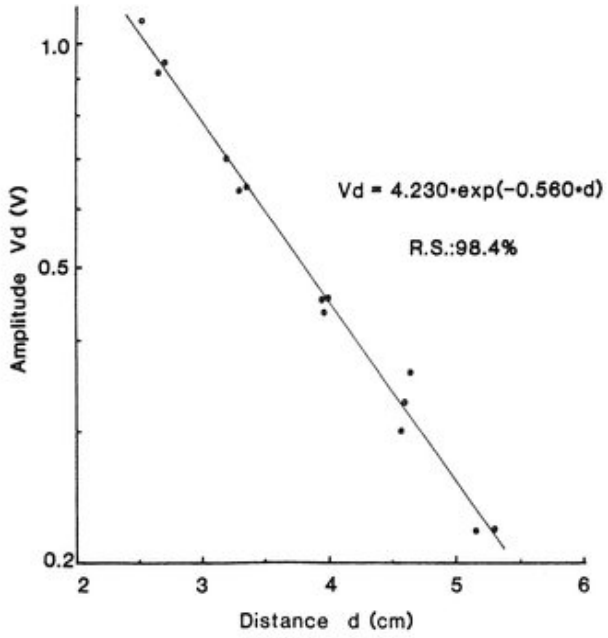

Fig. 5. Amplitude attenuation of thermoelastic pressure wave in cat brain.

of 64 measurements made at 6 different sets of distances. This number is nearly identical to that reported for ultrasound propagation in cat brain tissue [Dunn et al., 1969]. The amplitude attenuation in brain experienced by the thermoelastic pressure wave is shown in Figure 5. Clearly, the attenuation follows the well-known exponential law and has an attenuation coefficient of 0.56/cm. This value is higher than the 0.11 reported in the literature [Dunn et al., 1969]. Speed of propagation and attenuation coefficient are both functions of frequency and temperature.

CONCLUSION

Direct measurements of microwave-induced pressure wave propagation in brain of cats irradiated with pulsed 2.45-GHz microwaves are presented. The experimental results indicate a microwave-induced pressure wave propagated in the cat brain with a speed of 1523 m/s. This speed of pressure wave propagation is close to that of conventional acoustic wave propagation in brain. These results lend further support for the thermoelastic theory of microwave-induced auditory effects in humans and animals.