ABSTRACT

Hearing plays a fundamental role in day to day life of various animal species. Feline individual and behavioral development depends on, among other things, the correct perception of sound. Congenital sensorineural deafness (CSD), also known as deafness associated with white coat color, is a condition described in cats with white fur, and is often correlated with the presence of blue irises. This disease is described among cat breeds with a dominant autosomal white gene (W). It is suspected that the indicated gene has a pleiotropic effect and is responsible not only for the white fur and color of the irises, but also the presence of functioning melanocytes in the inner ear. The lack of functioning melanocytes within the cochlea has been directly linked to the occurrence of CSD in white cats, but the mechanisms of inheritance have not yet been described. Most of the available data on CSD in cats comes from studies on mixed-breed cats from experimental colonies. Therefore, the first and second stages of this study aimed to determine the prevalence of CSD among purebred white client-owned cats in Poland, as well as to describe the association between the disease and the presence of blue irises in the studied population. The first stage of the study included 72 cats of six different breeds. The second stage of the research was dedicated to describing the abovementioned associations within one breed and due to the lack of previous reliable data, it concentrated on 40 Devon Rex cats. The aim of the first stage of the research was also to determine the presence of possible breed predispositions characterizing individual cat breeds regarding CSD. Additionally, the aim of both stages of the study was to determine the differences in the prevalence of unilateral and bilateral CSD, as well as to describe the association between sex and the prevalence CSD. All cats without any abnormalities during clinical and neurological examination underwent hearing testing using brainstem auditory evoked potentials (BAEP). The prevalence of CSD among client-owned cats in Poland in the first stage of the study was 16.7%, while among Devon Rex cats the prevalence was estimated at 10.0% in the second stage of the study. There were no differences between the occurrence of unilateral or bilateral CSD In studied cat populations. Moreover, there was no association between sex or blue irises and the occurrence of CSD. The obtained results indicate that, the prevalence of CSD in the studied population in Poland was lower compared to available, published data from other cat populations. Additionally, the obtained results indicate no association between the presence of blue irises and CSD in the population of client-owned cats in Poland. Due to the low prevalence of CSD in Devon Rex

cats, a research strategy aimed at describing CSD in specific feline breeds and not the entire species may be suggested.

Keywords: deafness, white cats, irises, BAEP