

ABSTRACT

Cystic fibrosis and diseases associated with trinucleotide expansions are serious hereditary disease that serves in my Diploma thesis as role models suitable for teaching interesting topics of human genetics at secondary schools. By using appropriate methods of prenatal genetic treatment, it is possible to make a diagnosis of the developing fetus and to determine a corresponding prognosis in next prenatal and postnatal development in families at risk.

The practical part of the thesis is devoted to the content analysis of biology schoolbooks for secondary schools and to the preparation of a prototype class of genetics at secondary schools. The aim of the content analysis of biology schoolbooks for secondary schools is the evaluation of various textbooks according to several preselected criteria. The aim of the presentation of the proposed prototype class was to determine, based on the responses obtained from the questionnaires, whether pupils of higher grades of secondary schools are interested in the subject matter of genetics, to find out what engaged their attention the most during the lessons or what they did not understand and what they considered as difficult. The lesson was conducted as a specialized seminar, the teaching method was a lecture.

From the selected biology schoolbooks for secondary schools, *Biologie pro gymnázia* by Jelínek, J. and Zicháček, V. that is used as study material at examined schools was evaluated as the best one. In total, 47,6 % of the surveyed secondary school pupils, 47,6 % are interested in genetics. It was less than a half of the pupils in the classes 4.A and 4.B, in the sexta class it was contrarily more than a half of the pupils – 73,7 %. In the classes 3.A and 3.B, 52,4 % of pupils answered indecisively. The pupils were mostly impressed by the overall concept of the presentation including the content of images and videos. They considered as difficult the topic of diseases associated with trinucleotide expansions and some technical titles contained in the presentation. A specialized seminar as a form of leading the class proved successful. That is not true about a lecture as a teaching method.

KEYWORDS

prenatal diagnostics, genetic counseling, cystic fibrosis, diseases associated with trinucleotide expansions, teaching principles, teaching forms and methods, schoolbooks analysis, teaching of genetics at secondary schools