CHRONIC OBSTRUCTIVE PULMONARY DISEASE: PECULIARITIES OF FURTHER COURSE PREDICTION

T. O. Pertseva, L. I. Konopkina, B. A. Basina

Abstract

The aim of the study was to develop a model for predicting of further course of COPD by outlining informative features according to their predictive value, and defining the category of patients with the highest risk for complications. After the clinical, functional and laboratory examination of 74 patients with COPD we performed a statistical analysis of the data with an estimate of the probability of disease worsening using Bayes' theorem and the serial (sequential) analysis of Wald with the calculation according to Kullback's information measure.

Results. The analysis has revealed 18 most informative diagnostic features. The highest value in predicting the course of COPD had spirometry indices, namely postbronchodilator (salbutamol) FEV_1 ($FEV_{1(post)}$), $FEV_{1(pre)}/FVC_{(pre)}$ and $FEV_{1(post)}/FVC_{(post)}$ — in range of ≤ 0,45, the level of $FVC_{(pre)}$ and $FVC_{(post)}$ in range of up to 75% of predicted.

The age of 60 and above and 65 years, the level of CRP more than 7.4 mg/l, the score of SGRQ questionnaire more than 55 points, the smoking index above 39 pack/year had also suggested-poor prognosis.

Conclusion. Spirometry indices were recognized to be the most valuable prognostic criteria for progressive course of COPD. Clinical, demographic and medical history indicators were considered as additional criteria. Current model, used by the authors, had sensitivity of 75.0% and specificity — 84.2%, while the precision (error-free) of prediction was 82.6%. The use of this model of COPD worsening prediction would improve a comprehensive evaluation of demographic, history, personal, clinical, functional and laboratory parameters in individual patient, increasing the quality of primary diagnosis and disease prognosis.

Key words: chronic obstructive pulmonary disease, course, prognosis.

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Tetiana O. Pertseva
Dnipropetrovsk state medical academy MOH of Ukraine
Chief of faculty therapy and endocrinology chair
Corresponding member of NAMS of Ukraine, professor
9, Dzerzhynskogo str., Dnipropetrovsk, 49044, Ukraine
Tel.: 38056 713-52-57
dsma@dsma.dp.ua