EV0480

ePoster Viewing

Clinical ID: paediatric infections

Classic and modern methods for determination aetiology of chronic infectious-inflammatory pulmonary diseases exacerbations in children

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Objectives: estimate amenity and diagnostic significance of different laboratory methods for determination aetiology of chronic infectious-inflammatory pulmonary diseases exacerbations in children.

Methods: From 2009 to 2011 complex examined 45 children aged from one to 17 years who were treated in a multiproduct children's hospital in Ekaterinburg, with exacerbation of bronchiectasis and chronic bronchitis. Cultural investigation of bronchoalveolar lavage, sputum, pleural effusion; identifying markers of bacterial infection by gas-liquid chromatography in bronchoalveolar lavage, sputum, pleural effusion; determination by indirect immunofluorescence IgG, IgM in serum agents of atypical pneumonia; detection by PCR DNA Haemophilus influenzae and Streptococcus pneumoniae in the lower respiratory tract clinical material; determination IgG by immune-enzyme analysis in paired sera of H. influenzae type b and non-capsulate strains of H. influenzae; S. pneumoniae; Staphylococcus aureus; Escherichia coli; Klebsiella pneumoniae; Pseudomonas aeruginosa. The control group included children without infectious respiratory pathology (n=45).

Results: When use only cultural investigation agent found in 51.1% of patients. For ones turn, the use by indirect immunofluorescence (IgM) allowed to identify agent in 24.4% of children, immune-enzyme analysis (seroconversion IgG) – 35.6%, DNA of H. influenzae and S. pneumoniae by PCR were detected in 28.9% and bacterial markers detected by chromatography in 84.5% of patients. Thus the highest efficiency is gas-liquid chromatography. Chromatographic method allow to detected exacerbation of chronic infectious-inflammatory pulmonary diseases, which are caused anaerobes in 31% cases, whereas the cultural - only 13.3% (p=0.03). No significant differences in the detection of aerobic these methods (p>0.05). Only multiple use of all the above methods will generate maximum aetiological determination of chronic infectious-inflammatory pulmonary diseases exacerbations in children - agent is detected of 88.6% cases, including microorganisms association - 26.4% (bacterial-bacterial: S. pneumoniae + H . influenzae – 2.2%, Mycoplasma pneumoniae + H. influenzae – 2.2%, Propionibacterium spp. + P. aeruginosa + E. coli – 4.4%, Bacteroides spp. + S. pneumoniae -4.4%, Peptostreptococcus spp. + Bacteroides ureolyticus + S. aureus – 2.2%; bacterial-viral: Stenotrophomonas maltophilia + Influenza A – 4.4%, Enterobacter cloacae + Influenza B – 2.2%, Eubacterium spp. + Respiratory Syncytial Virus - 2.2%; bacterial-fungal: E. coli + Candida glabrata + Candida krusei + Candida tropicalis – 2.2%), and in monoculture – 62.2% (H. influenzae – 15.6%, S. pneumoniae – 6.7%, Moraxella catarrhalis – 6.7%, S. aureus – 2.2%, Chlamidophyla pneumoniae – 4.4%, M. pneumoniae – 2.2%, Legionella pneumophila, serogroup 1 - 2.2%; asporous anaerobic bacteria: Bacteroides spp. - 6.7%, Fusobacterium nucleatum – 6.7%, Peptostreptococcus spp. - 4.4% and viruses: Parainfluenza serotypes 1, 2, 3 - 2.2%, Influenza A - 2.2%).

Conclusion: Using gas-liquid chromatography and PCR, along with cultural, by indirect immunofluorescence, immune-enzyme analysis detected infection in 88.6% cases chronic infectious-inflammatory pulmonary diseases exacerbations in children.