levels and bronchial asthma phenotype in schoolchildren (χ^2=22,2, p<0,001). The phenotype of virus-induced, effort induced and unresolved asthma is clinically presented by mild symptoms. Allergen-induced asthma is dominated by severe forms of the disease.

Phenotype allergen-induced asthma is identified in 70% of children included in the present study and is characterized by high levels of the total serum IgE. The low values of total IgE in children with virus-induced, effort induced and unresolved asthma demonstrates the implication of slow allergic reactions.

Key words: bronchial asthma, total IgE, phenotype, children.

Chest imaging findings in children with cystic fibrosis

***S. Sciuca[1], O.Turcu[1], M. Efros[2]**

[1]Department of Pediatrics, NicolaeTestemitanu State Medical and Pharmaceutical University
[2]Department of Imagistic,Research Institute for Maternal and Child Health Care
93, Burebista Street, Chisinau, Republic of Moldova

*Corresponding author: +37379471374. E-mail: ssciuca@rambler.ru

Cystic fibrosis (CF) is an inherited chronic life-threatening disease that most critically affects the lungs. It causes the production ofsticky mucus that clogs the lungs and leads to inflammation. The severity of lung damage determines the evolution of the disease and requires instrumental confirmation.

Research was performed to determinate the structural changes of the lung tissue in children with CF by the conventional chest X-ray and thorax spiral computed tomography (CT).

In this study we evaluated the chest X-raysof 55 patients (32 girls and 23 boys) and the CT scans of 36 patients with CF (21 girls and 15 boys), from 2 to 18 years. Four patients had a mild evolution of CF, 10 children had moderate, and 21 suffered from the severe form of the disease.

The most common chest radiographic findings in CF patients were hyperinflation (87.3%), bronchial thickening (94.5%) and dilatation (41.8%), an increase in interstitial markings (76.3%), and pneumofibrosis (85.4%).

Abnormal findings were detected in 94.4% patients examined by CT. Bronchiectasis developed in 77.7% CF patients, including 28.6% cases in the upper or mid lobes and 71.4% children with generalized bronchiectasis. Cysticbronchus deformations withliquid levels were identified in 2 of the patients with severe evolution of CF. Sectors of fibrosis were revealed in 6 spiral CT images. In two of the CF children CT findings of chronic obstructive bronchitis were detected, and in other two patients no structural bronchial changes were founded.

The method of spiral tomography offeredmore complete and detailed information about the anatomo-morphological substrate of pulmonary modifications in children with cystic fibrosis.

In children with CF structural bronchopulmonaryspiral CTsreveals modificationssuch as focal fibrosis, and sometimes widespread bronchial deformations with saccate bronchiectasis.

Key words: cystic fibrosis, lungs, children.

The treatment of bronchiolitis in infants and young children

I. Stan

Department of Pediatrics, Maternal and Child Healthcare Institute, Bucharest, Romania
Corresponding author e-mail: iustinas@yahoo.com

Bronchiolitis is swelling and mucus buildup in the smallest air passages in the lungs (bronchioles) usually due to a viral infection (RSV, adenovirus, influenza, Parainfluenza). Bronchiolitis usually affects children under the age of 2, with a peak in the age of 3 - 6 months. It is a common, and sometimes severe illness.

Risk factors for bronchiolitis include: exposure to cigarette smoke at an age younger than 6 months old, living in crowded conditions, not being breastfed, and prematurity. Sometimes, no treatment is necessary.

The basic management of typical bronchiolitis is anchored in the provision of therapies that assures the patient is clinically stable, well oxygenated, and well hydrated. The main benefits of hospitalization of infants with acute bronchiolitis are the careful clinical monitoring, maintenance of a patent's airway (through positioning, suctioning, and mucus clearance) and adequate hydration, and parental education.

It is recommended to consider monitoring the cardiac and respiratory rate in hospitalized patients during the acute stage of bronchiolitis when the risk of apnea and/or bradycardia is greatest: premature infants, infants with underlying chronic conditions predisposing to apnea, infants with a witnessed episode of apnea, and infants less than three months of age who contract RSV.

It is recommended to administer supplemental oxygen when the saturation is less than 91% and consider weaning oxygen when the saturation is higher than 94%.

Systemic corticosteroids and inhaled bronchodilators are widely used by clinicians caring for infants with bronchiolitis. Clinical practice guidelines have recommended against their routine use, although there may be some instances where they will be useful: in older patients (> 12 months) with asthma risk factors (parental history of asthma, *in utero* exposure to parental smoking, and repeated wheezing before age 1) and any history of wheezing. It

is recommended that a single trial inhalation using epinephrine or albuterol is to be considered on an individual basis.

Nebulized racemic epinephrine demonstrates better short-term improvement in pulmonary physiology. Combined treatment of systemic glucocorticoids (dexamethasone) and bronchodilators (epinephrine) may significantly reduce hospital admissions.

It is recommended the infant be suctioned, when clinically indicated before feedings, as needed, prior to each inhalation therapy and normal saline nose drops may be used prior to suctioning. Current guidelines do not recommend routine chest physiotherapy in the management of bronchiolitis.

Infants with this severe disease may need supportive care for respiratory failure and dehydration, such as mechanical ventilation and supplemental fluid therapy. Treatment for severe bronchiolitis may include: humidified oxygen therapy, chest physical therapy, bronchodilator medications: Ventolin, Salbutamol, Epinephrine (Adrenalin), anti-viral medication from bronchiolitis: ribavirin, palivizumab, antibiotics for associated otitis media, suspected bacterial pneumonia, and mechanical ventilation.

It is recommended that the family be educated on the following topics regarding the care of a child with bronchiolitis: to call their primary care provider if the following signs of worsening clinical status are observed: increasing respiratory rate and/or work of breathing as indicated by use of the accessory muscle, inability to maintain adequate hydration, or worsening general appearance.

Therapies NOT Routinely Recommended:

It is recommended that scheduled or serial inhalation therapies not be used routinely nor repeated if there is no measured improvement in the clinical outcome after a trial inhalation. Hypertonic saline inhalations are not to be given for the routine treatment of bronchiolitis due to inconsistent evidence regarding its effectiveness. It is recommended at this time that the following drugs not be used in the treatment of bronchiolitis: antibodies (immunoglobulins), Montelukast, Recombinant human deoxyribonuclease (rhDNase), antihistamines, oral decongestants, and nasal vasoconstrictors. Antibiotics are not recommended unless bacterial infection is suggested (e.g., toxic appearance, hyperpyrexia, consolidation or focal lobar infiltrates on chest radiograph, leukocytosis, positive bacterial cultures).

Key words: bronchiolitis, treatment, child.

The role of pulmonary infection in progression of cystic fibrosis lung disease

I. Stan

Department of Pediatrics, Maternal and Child Healthcare Institute, Bucharest, Romania

Corresponding author e-mail: iustinas@yahoo.com

Cystic fibrosis (CF) is a life-shortening genetic disease characterized by variability in the age of death. This is largely due to variability in the rate of progression of lung disease, the primary cause of mortality. In most patients with cystic fibrosis (CF) life expectancy is limited due to a progressive loss of functional lung tissue. 80% of premature deaths continue to result directly or indirectly from loss of lung function.

The factors associated with an increased risk of lung disease progression are: young age, high lung function, being of the female sex, certain CFTR genotypes, pancreatic insufficiency, poor nutritional status, lower socioeconomic status, respiratory viral infections, and infection of *Pseudomonas aeruginosa* or *Burkholderia cepacia*.

Virtually all patients with CF are chronically infected with one or more bacterial species, and the inflammatory response to infection appears to be more intense in patients with CF. Early infection of CF in the airways is mostly caused by *Staphylococcus aureus* and *Haemophilus influenza,* than from *P. aeruginosa* or other gram negative stains. Recent studies, especially those following patients diagnosed by neonatal screening, have shown that infection of P. aeruginosa usually occurs at very young age. Positive antibody response to *P. aeruginosa* was found in children, with the mean age of 15 months, about 12 months before first cultures were positive. Also in young, non-sputum producing children it was found that throat swabs frequently showed positive cultures for *P. aeruginosa*. Chronic infection is prevalent in about 80% of all patients with CF. In patients with chronic infection and alginate-coated mucous strains of *Ps. aeruginosa*, eradication is nearly impossible. CF and *Ps. aeruginosa,* an unfavorable relationship, can be explained by the possibility of CFTR acting as a specific receptor for *Ps. aeruginosa*. CFTR may influence bacterial adherence to epithelial cells. The "overproduction" of pro-inflammatory cytokines and significantly lower levels of the anti-inflammatory cytokine IL-10, which inhibits the production of pro-inflammatory cytokines, results in excessive and persistent inflammation in the CF airways. As a result, lung functioning deteriorates more rapidly in *Ps. aeruginosa*-positive CF patients compared with *Ps. aeruginosa*-negative CF patients. Patients with cystic fibrosis are often colonized with bacteria other than PA, causing bronco-pulmonary infections that lead to the deterioration of lung functioning such as: *Burkholderia cepacia* complex, *Achromobacter xylosoxidans* and *Stenotrophomonas maltophilia*. Patients chronically infected with *S. maltophilia* are cable of rising a specific antibody response against this bacteria associated with worsening lung function. Chronic infection of *S. maltophilia* is correlated with a decline in lung functioning, but this decline was already present prior to the chronic infection, where the high prevalence of *Aspergillus* and ABPA and NTM may have contributed a role in this result.

Staphylococcus aureus (*S. aureus*) is one of the earliest bacteria detected in infants. Treatment with anti-staphylococcal agents reduces the infection rate of MSSA but may lead to a higher rate of infection of *Ps. aeruginosa*. *S. aureus* which isolates harbor to a multitude of virulence factors, overlapping to a large degree in MSSA and MRSA. To date there are no conclusive studies demonstrating that the early aggressive treatment of MRSA respiratory infection can prevent chronic infection or if this approach ultimately improves outcomes.

Key words: cystic fibrosis, pulmonary infection, lung disease.