Bacteriological Profile of Pulmonary Infections in Children with Cystic Fibrosis

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Objective: To analyze the bacteriological profile of pulmonary infections in children with cystic fibrosis and to study their impact on the disease outcome.

Methods: From 1996 to 2012, 17 cases of cystic fibrosis were collected in the Children Department B in the Children’s Hospital of Tunis. Clinical, biological and outcome data of the disease were analyzed for each child.

Results: The mean age of the 17 patients was 1 year and a half (1 month - 13 years). The first bacterial pulmonary infection occurred at the age of 21 months on average (2 months - 9 years). The organism was identified in 13 cases. It was Staphylococcus aureus (n= 6) of Pseudomonas aeruginosa (n = 5), and Haemophilus Influenzae (n= 3). Subsequent episodes occurred at a rate of 2.3 times / year / child. Eight patients developed diffuse bronchiectasis. Germs isolated during follow-up were: Pseudomonas aeruginosa (n = 10), Staphylococcus aureus (n = 9), Haemophilus Influenzae (n = 8), Klebsiella pneumoniae (n = 1), Serratia Liquefiens (n= 1) and Marcescens (n =1). Chronic colonization with Staphylococcus aureus was found in 3 cases and Pseudomonas aeruginosa in 10 cases. The latter had occurred after an average of 7 years of disease development (11 months -13 years). The Pseudomonas aeruginosa was responsible for an increase in the number of hospitalizations for respiratory exacerbation (n = 8), a deterioration in FEV (n = 5) and the development of chronic respiratory failure with oxygen dependence (n= 2). Bacterial pulmonary infection was fatal in 9 cases.

Conclusion: The organisms most frequently responsible for pulmonary infections in cystic fibrosis are Staphylocoque aureus, Haemophilus Influenzae, and Pseudomonas aeruginosa. The latter is the most dangerous because it affects the disease prognosis and can rapidly destroy lung function.
Randomized Controlled Trial of a Two-strain Probiotic Combination to Reduce Common Cold in Children

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Background: Common cold is the most frequent acute illness in children. It is responsible for the largest proportion of school and work absenteeism and causes a huge economic burden. None of the current interventions is greatly effective for prevention. This study aimed to assess the efficacy of a two-strain combination probiotics for prevention of common cold symptoms in healthy school-age children.

Methods: A randomized controlled trial was conducted in school-age children, aged 8-13 years, from one public school of central Thailand during winter season. Participants were randomized to receive either a two-strain combination probiotic (Lactobacillus acidophilus and Bifidobacterium bifidum) or placebo given twice a day for 3 months. The primary outcome was any symptom of cold during the 3 months study period while vomiting, diarrhea, use of antibiotics, school absence due to any cause, school absence due to cold and duration of all symptoms were secondary outcomes.

Results: Of the 40 children in each group, 31 (77%) in probiotic group as against 38 (95%) in placebo group (p=0.048) developed at least 1 symptom of cold. Children in probiotics group had significantly lower risk of fever, cough, rhinorrhea, school absence and school absence related to common cold compared to children in placebo group. There was no impact on diarrhea and vomiting.

Conclusion: A two-strain probiotic combination given twice a day for 3 months was able to reduce the symptoms of common cold and school absenteeism in schoolchildren.
Background: Epidemic situation by tuberculosis among the children is impossible to estimate simply. At the stably high index of morbidity of children it have tendency to increase among teenagers.

Methods: We used the dates of Bronchoscopy and Spirometry in the First Diagnosed Tuberculoses (FDT) children (n=72 patients).

Result: Indication of Bronchoscopy presented an information of catarrhal changes (61,04±5,27%) mainly, catarrhal heterospecific endobronchitis (25,18±2,89%) in the FDT children The cases of festering (18,29±1,36%) and catarrhal festering (10,29±1,23%) bronchitis we observed with less frequency. The dates of Bronchoscopy in the children (5,41±3,77) identified as signs of bronchoadenitis. Desorder of mucus shell of bronchial tract in the FDT children with bronchoobstructive syndrome is observed in 64,29±2,18% patients and in 11,37±1,05% of patients was carries twoextraneous character by our data. Desorder of mucus shell observed in 52,18±3,24% cases, and bilateral violations – in 9,18±1,93% of FDT children with normal bronchial communicating. Pulmonary function testing had important diagnostic value for the FDT patients. At research of function of the external breathing for all of patients (51,36±3,52%) were identified the changes by bronchoobstructive character. We investigated the level of the next spirometry parameters. So, in the FDT patients there were follow dates: MEF75, FEF25 - (47,59±2,22%), MEF50, FEF50 – (53,02±2,11%), MEF25, FEF75 - (56,97±1,72 %), PEF – (54,92±2,24%). This dates confirmed obstruction pattern, which is encountered most often in the FDT children.

Conclusions: Desorder of mucus shell of bronchial tract in the FDT children were characterised for most patients in particular for children with bronchoobstructive syndrom, which confirmed by ventilation desorders.
Background: Measles (M) is one of the leading causes of death among young children even though a safe and cost-effective vaccine is available.

Material and Methods: We studied two different groups children, aged 12-36 month with M- non-immune persons (n=69) and immune persons (n=66).

Results: The dates of observation of these probed groups have reliable difference between most indexes. More heavy duration of M was observed in the non-immune children, that is confirmed by followings indexes: photophobia, diarrhea (39 (59,09±6,05%), duration of catarrhal syndrome was longer, more than 5 days (45 (65,22±5,73% and 27 children (40,91±6,05%) accordingly on groups). Immune children have pyrectic type of fever, when non-immune children have febric type, we observed acute one-sided pneumonia, acute bronchiolitis and acute simple bronchitis for them. In the group of non-immune children there is an increase of level of copper and decline of level of phosphorus at comparison of immune children. There is reliable predominance of levels IL-1, 6 in the non-immune children, that correlates with duration of catarrhal period more than 5 days and with duration of fever. By dates of regressive analyses we identified presentative intercommunications of development of morphofunctional signs of M in the immune children with dates of Ultrasonograpthia, level of iodine (β=0,96-0,98). Also statistical information specify multifacors intercommunications of cytocine profil (IL-1,2,6,10) and microelement status in immune child, in particular iron and iodine.

Resume: In the non-immune children with M was observed more heavy duration and disbalans of essential oligoelements that leads to about a necessity vaccinations and mineralocorrection.
Patient Profile and Mortality Predictors in Severe Dengue in Intensive Care Setting

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Background: Severe dengue is a major public health problem in tropical and subtropical countries resulting in significant morbidity and mortality in children.

Objectives: To study the clinical course of children with severe dengue admitted in the pediatric intensive care unit (PICU) and identify risk factors for mortality.

Method: We retrospectively reviewed the medical records of 39 children admitted with severe dengue in the PICU of Kalawati Saran Children’s Hospital, a referral centre in North India, during the dengue epidemic from August to November 2012. Severe dengue was diagnosed by WHO case definition and confirmed by a positive test for IgM ELISA. Twelve of the patients who expired were included in the study and the rest were used as controls.

Results: The mean age of the study population was 8.5 ± 3.54 years. The mortality and control group had no difference in the type or duration of symptoms at admission except altered sensorium (5/12; 41.7% vs 1/27; 3.7%, p=0.002). Presence of shock at admission, both compensated and uncompensated, were significantly more in the mortality group (83% vs 41%, p= 0.04; and for mortality 6.4 and 8 for compensated and uncompensated shock, respectively). The baseline hematocrit, platelet and leucocyte counts were not significantly different in both the groups. The PELOD score at admission was significantly more in the mortality group than the control group ((16.9 ± 5.3 vs7.11±6.8, p= 0.003).

Conclusion: Presence of encephalopathy, advanced stages of shock and high PELOD score at admission were the predictors of mortality in children with severe dengue. The presence of uncompensated forms of shock at presentation may reflect a delay in recognition of clinical signs and referral to tertiary care.
Herpetic Whitlow in Children – Case Report

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Background: Herpetic whitlow (HW) is a cutaneous viral infection caused by the *Herpes simplex virus* on distal phalanges. This kind of lesion is not so frequent in medical practice, but children can get infected by autoinoculation from oral gingivostomatitis aphthosa caused by *Herpes simplex virus 1* (HSV-1) type 1 or from their accompanying persons with *Herpes simplex virus* labial/genital (HSV1/HSV2) infection.

Objective: We will describe two cases of HW: clinical aspect, evolution and treatment. The first case is a 15 month old male infant, with right hand thumb HW and herpes stomatitis primo-infection. The other case is a 4 year old boy, with recurrent HW right hand forefinger (2 previous episodes, surgically treated before a correct diagnosis was made).

Materials and Methods: Clinical criteria and paraclinical tests were concurrent to the HW diagnosis in both cases. The clinical criteria for the diagnosis of HW were the specific painful blisters, edema, painful satellite adenopathy in both cases. Hemogram aspect with normal leucocyte count and then detection of HSV 1 virus from vesicles, by immunofluorescence method confirmed by Real time PCR method, were the paraclinical criteria. The epidemiological background (gingivostomatitis aphthosa or recurrent episodes) was also significant in both cases.

The treatment was Acyclovir 15mg/kgc p.o. (5 doses per day) and Acyclovir 5% topical, for 5 days and analgesics (paracetamolum), with favourable evolution.

Conclusion:
1. Differential diagnosis between bacterial and herpetic whitlow is very important especially in children, considering the fact that the second one is an autolimitant infection that doesn’t need antibiotherapy or surgical treatment.
2. The corneous layer of the skin at fingers level makes the profound vesicles similar in both types of whitlow. Wearing gloves when examining the very contagious lesions is very important in avoiding child to child HW transmission by medical staff.
Efficacy of Probiotics Stored at Ambient Temperature in Treatment of Acute Diarrhea

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Background: Diarrhea frequently causes morbidity and mortality in children especially in the developing countries. Probiotics have demonstrated potential to reduce duration of diarrhoea and frequency of watery stools. Lactobacillus acidophilus and Bifidobacterium bifidum are two favorable strains for the symptomatic treatment of diarrhea. However, the usual storage temperature at 4°C is generally not feasible in tropical or sub-tropical countries. This study aimed to evaluate the efficacy of that 2-strain probiotic combination for treatment of acute diarrhoea when stored at 28–32°C.

Methods: A double-blind randomized study was conducted in children, aged 2 months to 7 years, who admitted to hospital with acute diarrhea. Patients were randomly assigned to receive 2-strain probiotic combination (L. acidophilus 10⁹ and B. bifidum 10⁹/capsule) stored at 4°C, at room temperature or to a placebo group. Duration of diarrhea is a primary outcome, while number of stools, hospital staying and fluid volume are considered as secondary outcomes.

Results: Probiotics treatment shortens diarrhea duration (34.1 and 34.8 hours with probiotics stored at 4°C and room temperature, respectively, and 58 hours with placebo P 0.01) and reduces the number of stools (7.3 and 8 versus 15.9 with placebo, P0.01).

Conclusion: Administration of probiotics is beneficial as additional treatment of acute diarrhea and efficacy is not affected by storage temperature.
Clinical and Epidemiological Data of Pertussis in Midwestern Region

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Background: Pertussis is still a prevalent disease presenting in epidemiological cycles each 3 to 5 years and mainly affecting young infant we have observed the reemergence of this disease, with very increased number in this summer and manly predomination in the infants under six months old.

Aim: The aims of the study was to see the factors that have influenced in the increased of incidence of these diseases in Ireland for last 3 year and to study the epidemiological and clinical signs of these diseases in our patients.

Methods: This was a retro prospective study of all the children admitted in university hospital limerick from period January 2010 to January 2013 with clinical symptoms of paroxysmal cough, difficulty in breathing, cyanosis, apnea, leukocitosis and in close contact with a adult with chronic cough, serological results for bordetella Pertussis.

Results: 84% (31) were under 6 months or younger (16 cases or 53% were ≤ 2 months) 56% (17) had been in contact with a cougher adult; 70% (21) were unvaccinated, 16% (5) had incomplete vaccination schedules, had only received one dose. The most of cases 66% (20) were seen during May to August 2012 and 34% (10) during June to September 2011. All patients were in the paroxysmal stages. Most frequent clinical signs at admission were: paroxysmal cough 100% (36), difficult breathing 93% (32); cyanosis 73% (28), fever 26% (11), apnea 23% (11), seizures: 2.8% (1). Laboratory findings showed median leukocytes count 24,500/mm3, 16% (5) of the cases was admitted to ICU, 100% due to respiratory failure, the average of length of stay in hospital was two weeks. The mortality was nill.

Conclusion: Our study confirm that infants who are unimmunized against Pertussis due to young age are the most affected group. A booster dose of the available acellular Pertussis vaccine in adolescents and adults may help reduce the impact of this disease among unimmunized young infants.
Detection of Trichodysplasia-spinulosa Associated Polyomavirus in a Case of Fatal Myocarditis in 7-month-old Girl

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Background: Myocarditis is a rare, but an important cause of sudden death in childhood. Its etiology is wide-ranging and often difficult to identify. Trichodysplasia-spinulosa associated polyomavirus (TSV) is a new member of human polyomavirus identified in 2010. There is little information about the association of TSV infection with diseases other than skin diseases.

Objective: The heart specimen from a case of fatal myocarditis was analyzed with an unbiased direct sequencing with a next-generation DNA sequencer to identify potential pathogens for myocarditis.

Methods: A 7-month-old girl suffered a fatal myocarditis and passed away 8 hours after admission in National Center for Global Health and Medicine, Tokyo, Japan. Autopsy was performed, and samples including myocardial and pulmonary tissues were examined pathologically. Virus genomes were examined with a next generation sequencer.

Results: Histologically, acute lymphocytic myocarditis with small granulomas was observed in the heart. A next generation sequencer identified an 80 bp-length of gene fragment of TSV in the heart sample. Polymerase chain reaction (PCR) was able to amplify several fragments longer than 1 kbp which covered the entire length of TSV. Direct sequencing revealed that the PCR products had a 99% homology to TSV genome reported previously. TSV fragments were also detected in the lung samples which showed bronchopneumonitis. Real-time PCR analysis showed that copy number of TSV was higher in the heart than other organs.

Conclusion: To our knowledge, this is the first case report describing the detection of TSV in a myocarditis specimen. Previous epidemiological studies demonstrated that TSV infection was common among general population and that primary infection of TSV occurred in childhood. Further studies such as viral protein expression on the myocarditis samples are required to reveal the association of TSV infection with the pathogenesis of myocarditis.