Risk factors for post fiberoptic-bronchoscopy fever in immunocompetent children with recurrent pneumonia

V. Moret, MD, L. Bottecchia, Student, D. Snijders, MD, F. Bertuola, MD, S. Bugin, MD, V. Storer, Student, S. Baraldo, PhD, E. Perissinotto, MD, A. Barbato, MD
University of Padova - Padova/IT

RATIONALE: Flexible bronchoscopy (FOB) with bronchoalveolar lavage (BAL) is useful in children with recurrent pneumonia to discriminate among different aetiologies. Fever post-FOB and BAL has reported in these children but its origin is subject to debate.

METHODS: We examined risk factors associated with fever in immunocompetent children with recurrent pneumonia undergoing FOB with BAL. Before the procedure all children performed routine blood tests, total and specific IgE dosages, Chest X-ray. All BAL specimens were tested for total and differential cell counts, interleukin (IL-8), eosinophil cationic protein (ECP), tumor necrosis factor (TNF), bacterial growth and respiratory viruses (reverse transcription-polymerase chain reaction). The cut-off for fever was 38°C in the 12 hours after the procedure.

RESULTS: The study population included 81 children (46 girls) aged between 7 and 215 months (mean age 64 months). Fever post FOB appeared in 29 of these patients (35.8%). There was a trend for age to be lower in children with fever than in those without fever (mean: 53 vs 70 months; p=0.06). Post FOB fever was present in 54.5% of children aged<36 months, in 38.6% of children aged between 36 and 84 months and in 7.7% of children aged>84 months. Among the different parameters examined, white blood cell count before the procedure was significantly higher in the group of patients with fever than without fever (mean=8777/mm^3 vs 7349/mm^3; p=0.04). Children with post FOB fever had higher basal CRP values than those without fever (mean 6.3±7.9 vs 3.3±0.5; p=0.015). CRP values within the normal range (0-6 mg/L) showed a specificity of 97.7% in predicting the absence of fever. None of the parameters examined in BAL was able to differentiate children with fever from those without fever.

CONCLUSIONS: Younger age was a substantial risk factor for appearance of post FOB fever in our population. Basal levels of WBC and CRP were also significantly associated with fever, suggesting they could be of prognostic value.

Table 1 – Clinical and laboratory findings in children with and without post FOB fever (data are presented as mean ± SD unless otherwise indicated)

Clinical and lab findings	**Fever**	**No Fever**	**p value**
Patients, N.	29	52	-
Gender, F/M	16/13	30/22	-
Age, months	53±19	70±41	0.06
White blood cells/mm^3	8777±2981	7349±1978	0.04

CRP mg/L	6.3±7.9	3.3±0.5	0.015
BAL findings			
Cell count, 10^6 /mL	4.1±5.1	4.2±4.1	0.34
Alveolar Macrophages %	56.6±22.5	58.6±24.6	0.66
Neutrophils %	34.2±23.9	33±26.2	0.69
Eosinophils %	0.4±0.9	1±2	0.10
Lymphocytes%	9.1±9	7.5±5	0.92
ECP ug/L	31±37.1	44.8±64.4	0.91
IL-8 pg/mL	1020±1047	1087±1660	0.29
TNF ng/L	17.2±30.7	23.4±63.8	0.62