Role of Bronchoscopically Acquired Bronchoalveolar Lavage in The Diagnosis of Pulmonary Fungal Infections in Critically Ill Immunocompromised Egyptian Children

THESIS

Submitted in partial fulfillment for MD degree of Pediatrics

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Cairo - 2006

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List of Abbreviations

ABPA	**:**	Allergic bronchopulmonary aspergillosis
AIDS	**:**	Acquired Immune Deficiency Syndrome
ALT	**:**	Alanin transeferase
APACHE II	**:**	Acute Physiologic and Chronic Health Evaluation II
AST	**:**	Aspartate transeferase
BAL	**:**	Bronchoalveolar lavage
BHI	**:**	Brain heart infusion
BMT	**:**	Bone marrow transplant
BUN	**:**	Blood urea nitrogen
C (a-v)O2	**:**	Arterial to mixed venous oxygen content difference
C3	**:**	Complement3
CARS	**:**	Compensatory anti-inflammatory response syndrome
CCD	**:**	Charge, Coupled Device
CGD	**:**	Chronic granulomatous disease
COPD	**:**	Chronic obstructive airway diseases
CRP	**:**	C- reactive protein
CVP	**:**	Central venous pressure
ECG	**:**	Electrocardiography
ELISA	**:**	Enzyme-linked immunosorbent assay

EPIC	**:**	The European Prevalence of Infections in Intensive Care
ERS	**:**	European Respiratory Society
EUORTC/ MSG	**:**	European Organization for Research and Treatment of Cancer/ Mycoses Study Group.
FDA	**:**	Food and Drug Administration
FDPs	**:**	Fibrin degradation products
FIO2	**:**	Fraction of inspired oxygen
FOB	**:**	Flexible fiberoptic bronchoscope.
FRC	**:**	Functional residual capacity
GVH	**:**	Graft versus host
HBV-FM	**:**	High-blood-volume fungal media
IA	**:**	Invasive aspergillosis
ICP	**:**	Intracranial pressure
ICU	**:**	Intensive Care Unit
IFN-γ	**:**	Interferon gamma
IgE	**:**	Immunoglobulin E
IgG	**:**	Immunoglobulin G
IgM	**:**	Immunoglobulin M
IMA	**:**	Inhibitory Mould Agar
IPA	**:**	Invasive pulmonary aspergillosis
IV	**:**	Intravenous

KOH	**:**	Potassium hydroxide
mAb	**:**	monoclonal antibodies
MODS	**:**	Multiorgan dysfunction syndrome
NNIS	**:**	National Nosocomial Infections Surveillance
OR/ 95%CI	**:**	Odd ratio/ 95% confidence interval
PaCO2	**:**	Partial arterial carbon dioxide concentration
PaO2/FIO2	**:**	Partial arterial oxygen concentration/ Fraction of inspired oxygen.
PaO2	**:**	Partial arterial oxygen concentration
PCWP	**:**	Pulmonary wedged capillary pressure
PEEP	**:**	Positive end-expiratory pressure
PICU	**:**	Pediatric intensive care unit
PIM	**:**	Pediatric Index of Mortality
PMN	**:**	Polymorph nuclear leucocytes.
PRISM III	**:**	Pediatric Risk of Mortality
PSI	**:**	Physiologic Stability Index
PT/PTT	**:**	Prothrombin time/ Partial Prothrombin time
RLL	**:**	Right lower lobe bronchus
RML	**:**	Right middle lobe bronchus
RUL	**:**	Right upper lobe
SAB	**:**	Sabouraud dextrose agar
SD	**:**	Standard deviation

SPSS	**:**	Statistical Package for the Social Science
TBB	**:**	Transbronchial biopsy
TPN	**:**	Total parenteral nutrition
WBC	**:**	White blood cells
WLB	**:**	White light bronchoscopy

INTRODUCTION

Pulmonary fungal infections represent a serious and a challenging problem for patients and physicians in the intensive care units ***(Barth et al, 2000)***.

The incidence of these infections is steadily increasing. Development of new effective immunosuppressive therapies for management of hematological and oncological diseases, wide use of strong broad spectrum antibiotics for treatment of bacterial infections and appearance of new virulent viruses are important factors claimed to explain the recent increase in the incidence of pulmonary mycosis ***(Seyfarth et al, 2001).***

Pulmonary mycosis is an infectious process of the lungs by one or more of different fungal pathogens.

Opportunistic fungi (e.g. Candida species, Aspergillus species, Mucor species and Cryptococcus neoformans) tend to cause pulmonary infections in patients who have congenital or acquired defects in their host defense mechanisms. Infection can occur by inhalation of spores or by reactivation of a latent infection. Hematogenous dissemination through venous catheters is frequently encountered among immunocompromised patients in intensive care units ***(Baughman, 1999)***.

Mortality rate of opportunistic pulmonary mycosis is increasing among immunocompromised patients; it has been