BeRS ACADEMY

PULMONARY FUNCTION COURSE

FRIDAY 17th NOVEMBER 2023

PRELIMINARY PROGRAM - MODULE II

Restrictive disorders, gas exchange, respiratory muscle, hyperventilation, blood gases

Venue: Pullman Hotel Brussels (Brussels South Train Station)

INTRODUCTION

The full course consists of three modules in total :

MODULE I	MODULE II	MODULE III
General topics and obstructive disorders	Restrictive disorders, gas exchange, respiratory muscle, hyperventilation, blood gases	Sleep and exercise testing

Each module will be presented in two parts: one theoretical part to be viewed online and a second part more practical and interactive to be organised face to face with the various speakers. The full cycle containing the three modules is organised every 1.5 year, as the duration of each cycle is 1.5 years. In this way, each trainee will have the possibility to attend the full course (three modules) during his-her pneumology traineeship.

FIRST THEORETICAL PART

We plan 7–8 theoretical online lectures per module (± 45 minutes each). After each lecture, a multiple choice questionnaire about the content will have to be filled in before having access to the following lecture. These presentations will be available on the BeRS Academy website.

SECOND PRATICAL PART

This practical and interactive on campus session will be organised as far as possible in the auditorium of the CHU Saint-Pierre (Brussels) or at the Pullman Hotel (Brussels South Station).

MODULE II

PART 1: Online presentations with MCQs.

2.1. Diffusion Capacity of the lung
Pathophysiologic background, methodology of DL,CO measurement, ATS/ERS standardisation report, definition of diffusion capacity, reference values and interpretation, DL,CO, KCO and VA, factors that affect DL,CO, quality control and reproducibility

2.2. Gas exchange, hypoxemia (pump and lung failure) and blood gases
O2 transport from air in tissue, pathogenesis of hypoxemia, A-a difference, hypoventilation, diffusion impairment, VQ inequalities, shunting, interpretation of gas analysis, gas exchange in pulmonary embolism, assessment and interpretation

2.3. Assessment of respiratory muscle function
Relevance, workload vs capacity of the respiratory pump, measurement of respiratory muscle function, determinants of respiratory muscle function, equipment, standardisation of measurements, sniff and endurance, normal values, clinical interpretation, demonstration with clips

2.4. Functional evaluation in pulmonary circulation
Physiology and pathophysiology of pulmonary circulation and pulmonary hypertension and the role of pulmonary function, right heart catheterisation, echocardiography, exercise testing

2.5. External factors and pulmonary function
How to deal in practice with the interpretation of lung function performed in morbid obese, aged (> 85-95 yrs), non-caucasians, thoracic/skeletal abnormilities)

2.6 Neuropsychological assessment of dyspnoea
Perception of the act of breathing and genesis of dyspnoea in healthy subjects and in disease

2.7. Hyperventilation syndrome
Definition, symptoms, critical reappraisal of the hyperventilation syndrome, diagnosis (hyperventilation provocation test, Nijmegen questionnaire, recovery)

PART 2: On campus sessions.

INTERACTIVE KEY LECTURES

2.1. Restrictive syndromes, assessment and longitudinal follow-up (theory)
Relevance of lung function in neuromuscular disease (prediction of respiratory failure) and idiopathic interstitial disorders (diagnosis prognosis, follow-up)

2.2 Are your lungs fit to dive?
There are many conditions of the lungs that could place a diver at increased risk for injury or death. The medical examiner must assess the diver for these conditions in making a determination for diving fitness.

PRACTICAL SESSIONS

2.2. Restriction DD parenchymal vs. thoracic wall vs. neuromuscular disorders Cases
2.3. Interpretation of diffusion disorders, gas exchange Cases
2.4. Fit to dive Cases

INTERACTIVE KEY LECTURES

2.5. Shunt calculation
Basics of shunt calculation, methodology and pitfalls, normal values

2.7 Fit to fly test
How to evaluate a patient with a reduced PaO2 to be fit to fly? Which test should be performed? What should be communicated to the travel agency?

2.8. Oxygen therapy and convention
Evidence based beneficial effects of long-term oxygen therapy in lung pathology and practical implementation in the Belgian context

PRACTICAL SESSIONS

2.7 Cases
- Blood gases and A-a gradient
- Pulmonary circulation
- Oxygen therapy

Attendees must be BeRS members and have to register online (www.bers.be) to attend these sessions. The faculty was chosen among the best pulmonary function specialists of Belgium appointed at one of the following universities: UAntwerpen, ULB, VUB, UCL, UGent, UHasselt, KULeuven, UNamur, UMons and ULiège.
The course directors are Profs. Eric Derom (UZ Gent), Wim Janssens (UZ Leuven) and Eric Marchand (UCL Mont-Godinne).

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