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257. Pathophysiological mechanisms at different scales: lung, airways, muscles and symptom perception

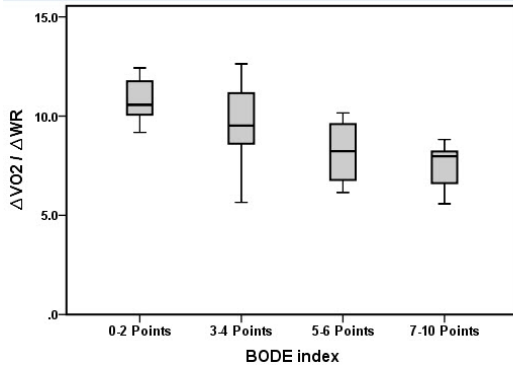
PA2287

Increase in oxygen uptake to work rate increment ($\Delta VO_2/\Delta WR$) during cardiopulmonary exercise testing: Correlation to COPD severity indicators, including BODE index

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Background: COPD is a multisystem disease with associated cardiac/musculoskeletal problems. But the impact of these comorbidities along with disease progression is less well defined. **Objectives:** To study the correlation of $\Delta VO_2/\Delta WR$ (often normal in COPD) with disease severity indexes. **Methods:** Symptom limited CPET was performed in 37 consecutive stable COPD (GOLD I-III) with normal cardiac ph. exam and no past history of cardiac/musculoskeletal disease. Correlation between $\Delta VO_2/\Delta WR$ and following variables were analyzed by Pearson's R test: BODE index, 6 minute walk distance (6MWD), FEV₁ and recent exacerbations frequency. **Results:** Baseline characteristics: Age:56.9±10 y, M/F: 31/6, FEV₁:65.0±22.4%pred., Smoking: 19.89±26.5 py and $\Delta VO_2/\Delta WR$: 9.3±2.0 ml.W⁻¹.min⁻¹. There was significant correlation between $\Delta VO_2/\Delta WR$ and BODE index (r:-0.64, P<0.01)



, 6MWD (r:0.56, P<0.01), FEV₁ (r:0.62, P<0.01), age (r:-0.46, P=0.02) and exacerbations frequency (r:-0.44, P=0.02). However no significant correlation was found between $\Delta VO_2/\Delta WR$ and duration of disease or smoking intensity. **Conclusion:** Significant correlations between $\Delta VO_2/\Delta WR$ (that is normal in pulmonary disease) and COPD severity indexes suggest that along with COPD progression, other comorbidities such as cardiac/musculoskeletal problems should be sought and managed meticulously, even with unrevealing past history.

258. Multidimensional analysis of respiratory problems

PA2313

Effect of time from last food intake on the respiratory exchange ratio

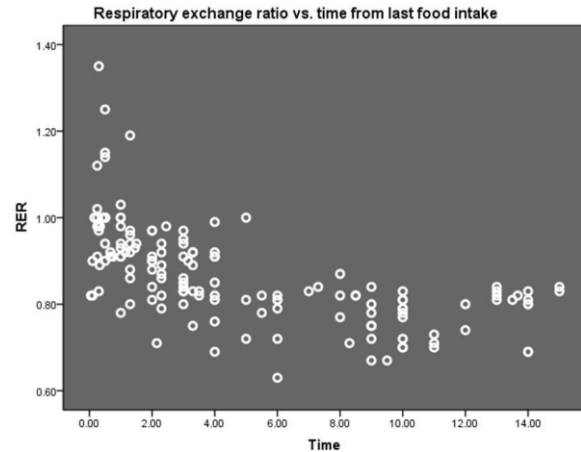
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Background: Alveolar oxygen pressure and alveolar-arterial oxygen gradient calculation are important in the assessment of respiratory system function. It needs estimation of respiratory exchange ratio (RER). Although RER is influenced by the dietary variation, is usually replaced by a constant value of 0.8. In this study, we evaluated the effect of time from last food intake on RER. **Methods:** After recording time from last food intake (T_f), RER was measured at rest and in sitting position with PowerCube ergospirometer (Ganshorn) in 147 volunteers. **Results:** 75 males and 72 females with mean age of 34.7±13.7 years were enrolled in the study (7 smokers). T_f mean was 4.8±4.4 hours (0.08-15). Mean RER was 0.87±0.11(0.63-1.35). There was a negative correlation between mean RER and T_f ($R^2=0.36$, P<0.001). Within 90

minutes from last food intake, there was significant RER dispersion (mean RER = 0.97±0.11, $R^2=0.03$, P=0.21). After this time, the dispersion was decreased (mean RER=0.82±0.08, $R^2=0.23$, P <0.001)



Conclusion: We found a significant relationship between RER and time from last food intake, especially within the first 90 minutes. The assumption of RER=0.8 is reasonable after this time period.

433. Malignant pleural effusions and mesothelioma

PA4338

Comparison of 1 liter vs. 1.5 liter thoracentesis in the management of malignant pleural effusion

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Introduction: Large volume thoracentesis (LVT) is a simple and practicable approach to managing malignant pleural effusion (MPE). But there is little data about the least and safest volume causing subjective/objective improvements. **Objective:** This randomized controlled study, compared 1 liter (L) LVT with 1.5 L, in symptomatic MPE. **Methods:** From Oct 2014 to Jan 2015, patients with moderate to severe (according to thoracic CT-scan) symptomatic MPE presented to emergency department, randomly assigned to 1 L or 1.5 L thoracentesis. Those with unstable medical conditions were excluded. Changes in MRC questionnaire score (ΔMRC), modified Borg scale ($\Delta mBorg$), spirometric volumes (ΔFVC and ΔFEV_1) and 6 minute walking distance ($\Delta 6MWD$) were analyzed between two groups by Mann-Whitney test. **Results:** 22 of 28 patients (11 in each group) completed the study (Age: 53.3±13.6). There were no significant differences of variables in 1L vs. 1.5L group: $\Delta mBorg$ (-1.7±1.6 vs. -1.8±2.0, P=0.96), ΔMRC (-0.4±0.5 vs. -0.3±0.5, P=0.59), ΔFVC (110±220 vs. 142±196cc, P=0.96), ΔFEV_1 (112±172 vs. 107±184cc, P= 0.85) and $\Delta 6MWD$ (16±29 vs. 70±144m, P=0.82). Additional LVT for recurrence of symptoms was required after 7.7±8.0 days in 1L group vs. 17.0±4.2 days in 1.5 L (P=0.15). Pneumothorax ensued in one (excluded) and no re-expansion pulmonary edema was occurred. In-hospital mortality was also not different (27.3% vs. 18.2%, P=0.61). **Conclusion:** Considering the fear from complications in greater amounts of LVT in symptomatic MPE, one liter thoracentesis is safe, effective and comparable to larger volumes in terms of subjective improvement and pulmonary function test changes.