

ELECTROCARDIOGRAPHIC CHANGES IN PATIENTS WITH SPONTANEOUS PNEUMOTHORAX

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Pneumothorax associated ECG abnormalities have been widely described. However, the mechanisms and clinical significance of ECG changes are still not fully understood. **Aim:** The aim of our study was to evaluate the prevalence and a pattern of the ECG alternations in patients with SP. **Material and methods:** Prospective study of 40 consecutive patients with SP admitted to our Department was undertaken. In all cases the diagnosis of SP was confirmed by chest X-ray. The relative volume of pneumothorax was calculated with the two different methods (Light index and Rhea nomogram). ECG tracing was recorded before and after full lung's re-expansion. Arterial blood gases were measured to assess the potential influence of pneumothorax-associated hypoxemia on ECG tracing. **Results:** The mean age of patients was 43.7 ± 19.1 lat (range 18-86). There were 22 cases (55%) of left-sided pneumothorax (LSP) and 18 cases (45%) of right-sided pneumothorax (RSP). Mean relative volume of pneumothorax was $51.4 \pm 24.7\%$ (measured according to Light index) and $53.5 \pm 22.9\%$ (according to Rhea nomogram). Heart rate (HR) was significantly higher in patients with pneumothorax as compared to that noted after lung re-expansion (91 ± 20 /min and 72 ± 16 /min; $p < 0.001$, respectively). However, there were no correlations either between HR and pneumothorax size, or HR and PaO₂. Abnormal left axis deviation was found in 3 patients with LSP and one with RSP, while abnormal right axis deviation was found only in two patients with LSP. Relevant QRS abnormalities (incomplete RBBB) or T-wave abnormalities (inversion) were found in 4 patients (10% of all). All of these abnormalities resolved following lung's re-expansion. QRS voltage in precordial leads V2-V6 was significantly decreased in patients with LSP, while RSP was associated with significant increase in the voltage of QRS in V5 and V6. **Conclusions:** The ECG tracing in patients with pneumothorax often reveals relevant changes. The most relevant abnormalities were observed in patients with large right-sided pneumothorax.