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Title: The role of the biomarker and the genetic polymorphism of endothelin-1 in pulmonary arterial hypertension among Egyptians

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Body: Study objective: This study analyses the endothelin-1 (ET-1) level, and gene polymorphisms for endothelin-1 (EDN1 gene) in patients with pulmonary arterial hypertension (PAH) in Egypt. Design: Cross-sectional study. Setting: Alexandria university, Chest Department. Subjects: Thirty subjects with PAH with 30 control subjects. Methods: Measurements and results: This study analysed the frequency and the potential role of endothelin -1 and gene polymorphisms, the +134del/insA, located in the gene encoding for Endothelin-1 (EDN1) in PAH. Thirty patients with pulmonary hypertension (12 [40%] men) were included in the study. The endothelin-1 mean was 1.8±1.3 fmol/ ml with range from 0.3 to 3.8 fmol/ ml in the patients group. The endothelin-1 mean was 0.7±0.05 fmol/ ml with range from 0.6 to 0.75 fmol/ ml in the patients group. There was a significantly higher level of endothelin-1 in the group of pulmonary hypertension ($p<0.001$). For the groups of polymorphisms studied, there was three genotypes (GT, TT, and GG), no substantial differences in genotype and allele distributions for +134 del/insA located in EDN1 gene, between PAH patients and control population, were observed (DF = 1; C.I.= 95.0; and $p = 0.226$). The genotype GG show the highest level of endothelin while the TT type show the lowest value of endothelin-1. Also, we found a significant relation between the higher endothelin-1 level and the lower oxygen saturation ($p= 0.049$), and the higher meanPAP ($p= 0.004$). Conclusions: In conclusion, our findings suggest a potential link between endothelin-1 level and specific genotypes in the EDN1 gene and susceptibility for PAH with a worse haemodynamic profile.