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poxaemia ($\text{PaO}_2 - 5.67 \pm 0.23$ kPa; $\text{SaO}_2 - 0.78 \pm 0.02$ L/L) were directly related to the level of Cu in the blood. We noted a negative correlation between Cu and SaO_2 ($r = -0.36$, $p < 0.05$) and between Cu and PaO_2 ($r = -0.35$, $p < 0.05$). Lactic acid concentration was significantly elevated in COLD group to 3.84 ± 0.14 mmol/L vs. control group 1.86 ± 0.11 mmol/L, $p < 0.001$. LDH were significantly depleted - 243.46 ± 6.94 U/L vs. control group 339.54 ± 9.34 U/L, $p < 0.001$. The highly positive correlation was found between Cu and LDH ($r = 0.81$, $p < 0.001$) and between Cu and Mg ($r = 0.47$, $p < 0.01$). These results are correlated to the parameters of acid - base status, and they suggest that it is necessary to determine copper in the blood of patients with COLD in order to correctly evaluate hypoxia.

265 | CERULOPLASMIN, COPPER, AND ZINC IN PULMONARY EMPHYSEMA

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The role of inflammation in emphysema and the involvement of oxidant stress in producing this inflammation are presented. The proposed mechanism of oxygen species formation is the modified Haber-Weiss reaction, also known as Fenton reaction. In Fenton reaction superoxide anion reacts with an oxidized form of a trace metal, such as Cu and Zn, causing reduction in that metal. Ceruloplasmin is the major antioxidant of plasma, and is the only protein capable of providing complete protection against inactivation of alfa 1-PI. Ceruloplasmin can also act as a scavenger of superoxide anions and may serve as the major copper transport protein of plasma. Extracellular zinc exerts a protective role on cells by preventing nonspecific leaks across the plasma membrane. We analyzed the blood samples from 20 patients with global respiratory failure (10 males, mean age 56 ± 7 yrs. and 10 females, mean age 60 ± 5 yrs.). All patients were heavy cigarette smokers, in average 33 ± 8 pack-years. Spirometrics examinations suggested severe, irreversible pressure dependent airflow limitations; body plethysmographic measurements revealed overinflation in increased total lung capacities, and transfer factors were greatly reduced. The control group consisted of 20 healthy smokers. Slightly elevated alfa 1-PI in our patients, 3.55 ± 0.76 g/L, indicated an acute phase reaction. As compared to the control group, we found significantly decreased concentration of zinc (74 ± 24 : 105 ± 34 $\mu\text{g}/100$ mL, $p < 0.001$). The mean values of ceruloplasmin were similar in the two groups (0.45 ± 0.01 : 0.37 ± 0.05 g/L). Serum copper levels were also similar in both groups (126 ± 46 : 134 ± 14

$\mu\text{g}/100\text{mL}$). The other authors have stated that in inflammation the copper concentration was increased. However our findings could not prove it. Decreased concentration of zinc pointed to the destabilization of lysosomal membranes and increased macrophage activity that liberates proteases.

266 | CONCENTRATION OF SOME TRACE ELEMENTS IN BLOOD SERUM OF MOTHER AND FOETUS IN PRETERM DELIVERY: ZINC

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Zinc is an essential trace element, and its significance for normal progression of pregnancy and normal delivery is well known. Twenty six women with preterm delivery and their foetuses, and a control group of 66 patients with normal delivery and their foetuses, were included in the study. Zinc serum concentrations were measured with flame atomic absorption spectrometry (FAAS). The concentration of zinc in the blood serum of women with preterm delivery (8.7 ± 1.5 $\mu\text{mol}/\text{L}$) was significantly lower ($p < 0.001$) than that in patients with normal pregnancy (10.5 ± 1.5 $\mu\text{mol}/\text{L}$). Zinc levels in blood serum of the cord blood of preterm newborns (14.7 ± 3.4 $\mu\text{mol}/\text{L}$) did not differ from that in normal newborns (14.9 ± 2.8 $\mu\text{mol}/\text{L}$). We discuss the possible mechanisms of the observed changes.

267 | CONCENTRATION OF SOME TRACE ELEMENTS IN BLOOD SERUM OF MOTHER AND FOETUS WITH PRETERM DELIVERY: COPPER

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Copper is an essential trace element and its concentration significantly increased in pregnancy. Twenty six women with preterm delivery and 78 with normal delivery were included in the study. Copper serum concentrations were measured with flame atomic absorption spectrometry.