METABOLITES OF NITRIC OXIDE AS A MARKER OF THE SYNDROME OF ACUTE LUNG INJURY SYNDROME IN NEWBORNS

O.H.Buriak, V.V.Komarnitskiy, O.V.Pavliukovych, N.D.Pavliukovych
Higher State Educational Establishment of Ukraine «Bukovinian State Medical University», Ukraine

A large number of studies of markers of damage in the exhaled air condensate (EAC) are widely used for diagnostics of various pathologies of the respiratory system [1, 2]. In the modern literature there is insufficient data on the features of the functioning of nitroxidergic systems in the syndrome of acute lung injury (SALI) in newborns.

Materials and Methods. Clinically, the initial stage of acute respiratory distress syndrome (ARDS) – SALI was observed in 60 newborns (group I of comparison). In 20 children (group II of comparison), ARDS was noted. The control group (III comparison group) was 20 practically healthy newborns. The research was carried out in an EAC, which was collected from the system of the respiratory contour of the apparatus of artificial ventilation of the lungs (on exhalation).

Results. The results of the study showed an increase in the level of metabolites of nitric oxide (NO) in EAC in newborns with SALI (2.3 μmol / L, p<0.05 in comparison with Group III (1.12 μmol / L). There was also an increase in the level of metabolites of NO in EAC in newborns with ARDS (4.78 μmol / L, p<0.05 in comparison with Groups I and III). Sensitivity of the NO metabolites level test (diagnostic limit of the test > 2 μmol / L) in the diagnosis of the initial stages of ARDS is 94.1%, specificity is 60.0%. Absolute risk of presence in newborns with severe respiratory failure, SALI, with the increase in metabolites of NO in EAC of 2.0 μmol / L is 80.0%.
Thus, the study of NO metabolites in EAC can be used as a marker of the SALI.

Prospects for further research. Comparative analysis of the level of increase in NO metabolites in EAC with the state of newborns with the SNAP II and SNAPPE II and NTISS scales.

References:


Key words: metabolites of nitric oxide, newborns, syndrome of acute lung injury, biomarkers.

Accepted for printing on 22 Jan 2018