R.F. Tepaev[1, 2]

[1] Scientific Center of Children's Health, Moscow, Russian Federation

[2] The First Sechenov Moscow State Medical University, Russian Federation

Commentary on the article by P.V. Svirin and L.E. Larina "Hemorrhage express-diagnostics and therapy in children 0-6 months of age"

Columnist:

Rustem Faridovich Tepaev, PhD, head of the resuscitation and intensive therapy department with a resuscitation and intensive therapy group for newborn and premature infants at the FSBI "Scientific Center of Children's Health", professor of the pediatrics department with a course of pediatric rheumatology at the First Sechenov Moscow State Medical University

Address: 2/1, Lomonosovskii ave., Moscow, 119991, **tel.:** +7 (499) 783-27-91, **e-mail:** rtepaev@inbox.ru

Hemostasis is a balanced system of pro- and anticoagulative mechanisms aimed at preventing hemorrhage caused by blood vessel damage on the one hand and uncontrollable thrombosis on the other. Vessel wall injury is accompanied by adhesion, activation and aggregation of thrombocytes; this leads to the blood plate thrombus formation and hemocoagulative blood potential activation with fibrin formation. At the same time, anticoagulative system (proteins C and S, endogenic heparin, antithrombin III) restricts thrombosis and maintains preservation and/or restoration of blood vessel permeability in combination with fibrinolytic system (plasminogen-plasmin).

Derangements in one or several hemostatic components lead to hemocoagulative disorders with the predominance of hemorrhagic diathesis or thrombosis. Hemorrhagic conditions may be hereditary (familial) (start in childhood) and acquired (mostly secondary). Most hereditary forms are associated with plasma blood coagulation factor, anomalies of megakaryocytes and platelets, rarer – with inferiority of minute blood vessels (at telangiectasia, Osler-Rendu disease). Acquired hemorrhagic diathesis forms are most often caused by DIC, immune affections of vascular wall and platelets, hematosis hypoplasia. Hemostatic disorders have a mixed character in case of several diseases due to the DIC overlay and are associated with infectious-septic, immune, destructive and tumor processes.

In this article, the author throws light on the peculiarities of diagnostics and treatment of hemorrhagic conditions in children of the first months of life – the most vulnerable group patients to the development of both hemorrhagic and thrombotic complications. Despite the presence of the key hemostatic components in newborns' blood, important quantitative and qualitative differences in the system are noted in premature and full-term infants, small children

and adult patients; this served as a ground for defining hemostatic condition in small children as “developmental hemostasis”.

Given the magazine’s audience specificity, the work gives the main diagnostics algorithms based on using routine hemocoagulative tests available for most medical pediatric departments and modern approaches to the therapy of hemorrhagic conditions in children of the first months of life.