

Cord Blood Banking in the COVID-19 Era: a Single Center Experience

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TO THE EDITOR:

We read with interest the publication of Turcan *et al* (1) on cord blood (CB) collection in the context of SARS-Cov-2 pandemic. The authors address an important topic that deserves to be discussed. The COVID-19 pandemic undoubtedly affected all aspects of stem cell transplantation, both on the part of the donor and recipient. To our knowledge, there are few publications focused on the impact of COVID-19 on cord blood banking (1-3). It is well known that all umbilical CB samples collected for allogeneic transplantation must be screened for infectious markers. The emergence of COVID-19 pandemic logically raised the question of whether CB donors should be tested for SARS-Cov-2 in order to provide safe stem cell products. The available data from PCR testing of amniotic fluid and cord blood

demonstrate that the intrauterine vertical coronavirus transmission is possible but unlikely (4-6). However, we agree with Turcan *et al* (1) that information about the mother's history concerning SARS-Cov-2 during pregnancy is essential and should be available prior to CB banking.

The Bulgarian National Public Stem Cell Bank (BNPSCB) collects and stores cord blood units (CBUs) for allogeneic transplantation. The rapid spread of SARS-Cov-2 worldwide has raised the issue of what additional precautions we need to take to ensure product safety. Since the beginning of the pandemic, screening donors for COVID-19 through medical history questionnaire and testing all mothers and CBUs for SARS-CoV-2 IgG and IgM antibodies have been implemented. In case of IgM seropositivity, it is appropriate to perform PCR testing of cord blood.

Our preliminary study on 75 umbilical CBUs donated to the BNPSCB between February 2020

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and January 2021 showed the presence of SARS-CoV-2 IgG antibodies in both maternal and cord blood in only two cases (7). A more recent analysis of 85 newly collected CB units found 16.47% samples positive for SARS-CoV-2 IgG antibodies. Based on these results and the mother's medical history, a passive transplacental transfer of SARS-CoV-2 IgG should be taken into account (8, 9).

Although there is no current evidence of coronavirus transmission from donor to recipient by cell therapies, we continually reappraise the medical questionnaire and criteria of CB donation in line with the latest scientific findings on COVID-19

and the Cord Blood Donor Selection Guidelines (TDSG-CB) of the United Kingdom Blood Transfusion Services (10).

We believe that these precautionary measures will contribute to the collection of high quality CBUs donated to the Bulgarian public stem cell bank for allogeneic transplantation. Furthermore, complementary data obtained through medical questionnaire and serological testing of the CB units will be important for research studies related to COVID-19 in the future.

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REFERENCES

- Turcan N, Ivanescu B, Stancioiu F, et al.** COVID-19 Pandemic Impact on Cord Blood Collection for Stem Cell Use and Actual Perspectives. *Maedica J Clin Med* 2021;16:189-193. doi.org/10.26574/maedica.2021.16.2.189.
- Rafii H, Ionescu I, Ruggeri A, et al.** Impact of COVID-19 pandemic on the use and release of cord blood units facilitated by the French Cord Blood Banks Network: on behalf of the Agency of Biomedicine, Eurocord and the French Society of Bone Marrow Transplant and Cell Therapy (SFGM-TC). *Bone Marrow Transplant* 2021;7:1-3. doi: 10.1038/s41409-021-01477-6.
- Lee YH.** COVID-19 pandemic: a double-edged sword for cord blood banking. *Blood Res* 2021;56:1-3. doi.org/10.5045/br.2021.2021021
- Tolu LB, Ezech A, Feyissa GT.** Vertical transmission of Severe Acute Respiratory Syndrome Coronavirus 2: A scoping review. *PLoS One* 2021;16:e0250196. doi: 10.1371/journal.pone.0250196.
- Konstantinidou AE, Skaltsounis P, Eleftheriades M, et al.** Pharyngeal sampling for PCR-testing in the investigation of SARS-COV-2 vertical transmission in pregnancy. *Eur J Obstet Gynecol Reprod Biol* 2021;260:18-21. doi: 10.1016/j.ejogrb.2021.02.026.
- Citu C, Neamtu R, Sorop VB, et al.** Assessing SARS-CoV-2 Vertical Transmission and Neonatal Complications. *J Clin Med* 2021;10:5253. doi: 10.3390/jcm10225253.
- Atanasova V, Mihaylova A, Pirnareva E, Naumova E.** Impact of SARS-CoV-2 pandemic on infectious status of donated cord blood units. *Bulgarian Journal of Clinical Immunology* 2020;13:11-13.
- Iannery DD, Gouma S, Dhudasia MB, et al.** Assessment of maternal and neonatal cord blood SARS-CoV-2 antibodies and placental transfer ratios. *JAMA Pediatr* 2021;175:594-600. doi: 10.1001/jamapediatrics.2021.0038.
- Boelig RC, Chaudhury S, Aghai ZH, et al.** Comprehensive serological profile and specificity of maternal and neonatal cord blood SARS-CoV-2 antibodies. *medRxiv* 2021;7:2021.12.06.21267328. doi: 10.1101/2021.12.06.21267328. Preprint.
- United Kingdom Blood Transfusion Services (UKBTS).** *Cord Blood Donor Selection Guidelines (TDSG-CB)*. Edition 203 - 01 June 2010. Release 40 (21 January 2021), pp. 41-44. https://www.transfusionguidelines.org/export/dsg/dsg-cb-pdf/203/40/01/tdsg-cb_203_40_01.pdf