**Screening for congenital heart anomalies at the Cantonal Hospital of Bihać: ten years of experience**

Mediha Kardašević¹, Fatima Begić², Rusmira Konjević³

¹Maternity hospital and Department of Neonatology, Cantonal hospital of Bihać

²Department of Paediatric, Cantonal hospital of Bihać

³Maternity hospital and Department of Neonatology, Cantonal hospital of Bihać

**Corresponding author**: Mediha Kardašević, MD, pediatric cardiologist, Department of Neonatology, Cantonal hospital of Bihać. e-mail: medihakardasevic@hotmail.com

**Introduction:** Congenital heart defects (CHD) are the most common congenital anomalies with an incidence of 0.8-1%. About a quarter of these children have a cyanogenic, life-threatening anomaly that requires surgery or catheterization in the first year of life. Late-detected cyanogenic anomaly leads to hypoxic damage to peripheral organs, higher perioperative mortality and poorer postoperative outcome.

**Patients and methods:** In the period from 01.01. 2012 until 31.12. In 2021, 16,210 children were born at the Bihać Cantonal Hospital. At the Nursery and Neonatology, a screening was performed at the CHD, which involves measuring pulse oximetry (PO) on the right arm and right leg at 24 hours of age by trained medical staff. In addition to the PO measurement protocol, a unique review methodology was applied in parallel. Based on the results, one of the three protocols was applied to the children, according to which the children were discharged home with or without a recommendation for further controls or transferred to the neonatology department for further diagnosis and treatment.

**Results:** 16 210 babies were born in the examined period. Screening diagnosed 263 children with CHD. Of these, 178 children had simple defects. 63 children had a clinically significant, non-cyanogenic defect. 22 children had a cyanogenic defect. We missed 33 children by screening. Of these, 6 cyanogenic defects, 16 clinically significant and 11 simple defects. Spontaneous healing / occlusion was diagnosed in 99 children. 43 children underwent surgery or catheter intervention. 94 unoperated children were monitored clinically. DAP was medically closed in three children. 15 children died, 3 of them underwent surgery.

**Conclusion**: Although PO screening methods significantly reduce the morbidity and mortality of cyanogenic congenital heart anomalies, further work is needed to improve it. Close cooperation between the multidisciplinary team is needed in order to better understand the purpose of screening, interpret the results and implement systematic screening. Continuous education is necessary to ensure that screening fits into the daily routine of medical staff.

**Key words:** congenital heart defects, pulse oximetry, screening

**Screening na urođene srčane anomalije u Kantonalnoj bolnici Bihać: desetogodišnje iskustvo**

**Autori:** Mediha Kardašević¹, Fatima Begić², Rusmira Konjević³

¹Porodilište i odsjek neonatologije, Kantonalna bolnica Bihać

²Odjel pedijatrija, Kantonalna bolnica Bihać

³Porodilište i odsjek neonatologije, Kantonalna bolnica Bihać

**Kontakt autor**: Mediha Kardašević, dječiji kardiolog, Porodilište i odsjek neonatologije, Kantonalna bolnica Bihać, e-mail: medihakardasevic@hotmail.com

**Uvod:** Urođene srčane mane (USM) su najčešće urođene anomalije s incidencijom od 0,8-1%. Oko četvrtina te djece ima cijanogenu, životno ugrožavajuću anomaliju koja zahtijeva operaciju ili kateterizaciju u prvoj godini života. Kasno otkrivena cijanogena anomalija dovodi do hipoksičnog oštećenja perifernih organa, većeg perioperativnog mortaliteta i lošijeg postoperativnog ishoda.

**Bolesnici i metode:** u periodu od 01.01. 2012. do 31.12. 2021 godine u KB Bihać rođeno je 16.210 djece. Na rodilištu i neonatologiji proveden je screening na USM koji podrazumijeva mjerenje pulsne oksimetrije (PO) na desnoj ruci i desnoj nozi u dobi od 24 sata, od strane obučenog medicinskog osoblja. Uz protokol mjerenja PO, paralelno je primijenjena i jedinstvena metodologija pregleda. Na temelju rezultata na djeci je primijenjen jedan od tri protokola, prema kojem su djeca sa ili bez preporuke otpuštena kući na daljnje kontrole ili premještena na neonatologiju na dalju dijagnostiku i liječenje.

**Rezultati:** u ispitivanom periodu rođeno je 16 210 beba. Screeningom je dijagnosticirano 263 djece sa USM. Od toga je 178 djece imalo jednostavnu manu. Klinički značajan, necijanogeni defekt imalo je 63 djece. Cijanogeni defekt imalo je 22 djece. Screeningom smo propustili 33 djece. Od toga, 6 cijanogenih mana, 16 klinički značajnih i 11 jednostavnih defekata. Spontano izlječenje/okluzija dijagnosticirano je kod 99 djece. Operaciji ili kateterskoj intervenciji podvrgnuto je 43 djece. Klinički se prati 94 neoperirane djece. DAP je medikamentozno zatvoren kod troje djece. Umrlo je 15 djece, od kojih je troje operirano.

**Zaključak:** iako metode screeninga PO značajno smanjuju morbiditet i mortalitet cijanogenih USM, potreban je daljnji rad na njihovom poboljšanju, kao i bliska saradnja multidisciplinarnog tima u cilju boljeg razumijevanja svrhe screeninga, interpretacije rezultata i sistematičnosti provođenja. Neophodna je kontinuirana edukacija kako bi se screening uklopio u svakodnevnu rutinu medicinskog osoblja.

**Ključne riječi:** urođene srčane mane, pulsna oksimetrija, screening