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P0001 Neonatal and follow-up viraemia and viruria in infants with congenital cytomegalovirus infection

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Background: Conflicting data exists on the association between viral load (VL) and clinical outcome of congenital cytomegalovirus infection (cCMV). In addition, limited data are available on kinetics of CMV clearance from blood and urine. The aims were: (1) to determine relationship between viremia, viruria and clinical findings at birth (2) to investigate the kinetics of CMV DNA clearance from blood and urine in newborns with cCMV (asymptomatic and symptomatic treated with (val)ganciclovir).

Materials/methods: This prospective study included 70 newborns with cCMV confirmed by CMV DNA detection in urine within 2-3 weeks of birth. All children underwent complete clinical, laboratory, imaging, audiological and ophthalmological examination. Viremia and viruria were determined by real-time PCR in longitudinal samples, with first VL (baseline) evaluation performed within 1st month of life and in the case of symptomatic cCMV - before (val)ganciclovir treatment. Follow-up data were analyzed independently among children with asymptomatic and symptomatic cCMV treated with (val)ganciclovir (16 mg/kg bid for 3 or 6 months).

Results: Fifty-eight of 70 newborns (83%) developed symptomatic cCMV. Viremia did not differ between symptomatic and asymptomatic cCMV (median=4.25 vs 3.44 $\log_{10}$copies/mL, respectively). However, viruria was significantly higher in symptomatic newborns (median=7 vs 5.9 $\log_{10}$copies/mL, p=0.0002). Among symptomatic newborns, 57 had CNS-involvement, 18-sensorineural hearing loss (SNHL), 17-thrombocytopenia. Higher viremia correlated with thrombocytopenia (5.03 vs 4.0 $\log_{10}$copies/mL; p = 0.018), whereas higher viruria with SNHL (7 vs 6.8 $\log_{10}$copies/mL; p=0.02). Kinetics of viremia and viruria in asymptomatic and 2 groups of symptomatic cCMV treated with (val)ganciclovir for 3 or 6 months were analyzed (Figure). In 7/12 asymptomatic cCMV children viremia decreased spontaneously after median time of 3 months (range 2-7 months), whereas viruria persisted at unchanged level up to 12 months. At the end of treatment: 12/15 and 8/13 cleared CMV in blood;10/15, and 10/13 - in urine (respectively in 3- and 6-month treatment group). After stopping (val)ganciclovir treatment a rebound of viremia (in 10/20 infants) and viruria (in 20/20) was frequently observed regardless of treatment duration.

Conclusions: Viremia and viruria was associated with some clinical findings at birth. Analyzing viremia/viruria could aid treatment decision and our understanding of cCMV pathogenesis.

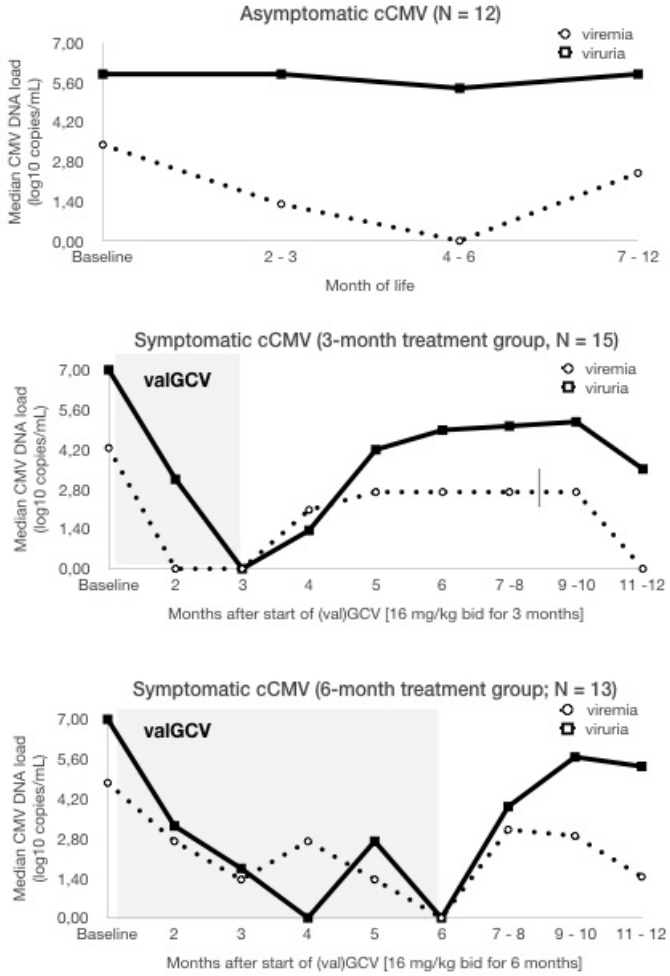

Figure. Longitudinal change of the median CMV viremia and viruria in infants with congenital CMV infection (cCMV).

Figure Abstract 2019 ECCMID cCMV.jpg