Sep 05, 2024

Study protocol: can viral load predict a symptomatic congenital CMV infection? A systematic review and meta-analysis

DOI
https://dx.doi.org/10.17504/protocols.io.14egn61qml5d/v1

Serena Salomè[1], Roberta Gammella[1], Clara Coppola[2], Pasquale Dolce[3], Letizia Capasso[4], Daniel Blasquez-Gamero[5]

[1]University of Naples Federico II;
[2]Department of traslactional medical sciences, division of Neonatology, University of Naples Federico II;
[3]Department of traslactional medical sciences, University of Naples Federico II;
[4]Department of traslactional medical sciences, division of Neonatology, University of Naples Federico II;
[5]Pediatric Infectious Diseases Unit, Hospital Universitario 12 de Octubre, Universidad Complutense, Instituto de Investigación Hospital 12 de Octubre (Imas12), Translational Research, Network in Pediatric Infectious Diseases (RITIP), Madrid, Spain

Clara Coppola
Department of traslactional medical sciences, division of Ne...

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN ACCESS

DOI: https://dx.doi.org/10.17504/protocols.io.14egn61qml5d/v1

Protocol Citation: Serena Salomè, Roberta Gammella, Clara Coppola, Pasquale Dolce, Letizia Capasso, Daniel Blasquez-Gamero 2024. Study protocol: can viral load predict a symptomatic congenital CMV infection? A systematic review and meta-analysis. **protocols.io https://dx.doi.org/10.17504/protocols.io.14egn61qml5d/v1**

License: This is an open access protocol distributed under the terms of the **Creative Commons Attribution License**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working
We use this protocol and it's working

Created: September 05, 2024

Last Modified: September 05, 2024

Protocol Integer ID: 107027

Keywords: congenital CMV, viral load, sequelae, symptomatic congenital cmv infection, great cmv load in blood, symptomatic ccmv, higher viral load in different biological fluid, higher viral load, congenital infection, infected newborn, great cmv load, higher cmv, analysis cmv, newborns at risk, common cause of congenital infection, viral load, symptomatic at birth, systematic searches of medline, clinical disease, early diagnosis, symptomatic disease, international prospective register of systematic review, prognosis, different biological fluid, systematic review

Abstract

CMV is the most common cause of congenital infection.
Although only approximately 10% of infected newborns are symptomatic at birth, a clinical disease may develop later in infancy. An early diagnosis of symptomatic cCMV is important for successful treatment.
Our objective was to evaluate if a higher viral load in different biological fluids correlates with symptomatic disease. We will perform a systematic searches of Medline, Embase, and SCOPUS from 1976 to December 2023. Methods will follow the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) guidelines and it has been registered with the International Prospective Register of Systematic Reviews (PROSPERO) on 03/05/24 (Registration number CRD42024537242). Our primary outcome will be to evaluate if great CMV load in blood and urine may predict newborns at risk of symptoms. As secondary outcome, we will search if higher CMV may influence long term prognosis and if there is a specific threshold

Attachments

DOCX

STUDY PROTOCOL CMV V...

142KB

1

Protocol references

1. Mussi-Pinhata MM, Yamamoto AY, Brito RMM, et al. Birth prevalence and natural history of congenital cytomegalovirus infection in a highly seroimmune population. Clinical Infectious Diseases. 2009;49(4):522-528. doi:10.1086/600882
2. Kenneson A, Cannon MJ. Review and meta-analysis of the epidemiology of congenital cytomegalovirus (CMV) infection. Rev Med Virol. 2007;17(4):253-276. doi:10.1002/rmv.535
3. Rawlinson WD, Boppana SB, Fowler KB, et al. Congenital cytomegalovirus infection in pregnancy and the neonate: consensus recommendations for prevention, diagnosis, and therapy. Lancet Infect Dis. 2017 ;17(6) : e177-e188. Doi :10.1016/S1473-3099(17)30143-3
4. Jones CE, Bailey H, Bamford A, et al. Managing challenges in congenital CMV: Current thinking. Arch Dis Child. 2023;108(8):601-607. doi:10.1136/archdischild-2022-323809
5. Dollard SC, Grosse SD, Ross DS. New estimates of the prevalence of neurological and sensory sequelae and mortality associated with congenital cytomegalovirus infection. Rev Med Virol. 2007;17(5):355-363. doi:10.1002/rmv.544
6. Cannon MJ, Griffiths PD, Aston V, Rawlinson WD. Universal newborn screening for congenital CMV infection: What is the evidence of potential benefit? Rev Med Virol. 2014;24(5):291-307. doi:10.1002/rmv.1790
7. Puhakka L, Lappalainen M, Lönnqvist T, et al. The burden of congenital cytomegalovirus infection: A prospective cohort study of 20 000 infants in Finland. J Pediatric Infect Dis Soc. 2019;8(3):205-212. doi:10.1093/jpids/piy027
8. Pinninti SG, Rodgers MD, Novak Z, et al. Clinical predictors of sensorineural hearing loss and cognitive outcome in infants with symptomatic congenital cytomegalovirus infection. Pediatric Infectious Disease Journal. 2016;35(8):924-926. doi:10.1097/INF.0000000000000119
9. Lanari M, Lazzarotto T, Venturi V, et al. Neonatal cytomegalovirus blood load and risk of sequelae in symptomatic and asymptomatic congenitally infected newborns. Pediatrics. 2006;117(1). doi:10.1542/peds.2005-0629
10. Marsico C, Aban I, Kuo H, et al. Blood Viral Load in Symptomatic Congenital Cytomegalovirus Infection. Journal of Infectious Diseases. 2019;219(9):1398-1406. doi:10.1093/infdis/jiy695
11. Forner G, Abate D, Mengoli C, Palù G, Gussetti N. High cytomegalovirus (CMV) DNAemia predicts CMV sequelae in asymptomatic congenitally infected newborns born to women with primary infection during pregnancy. Journal of Infectious Diseases. 2015;212(1):67-71. doi:10.1093/infdis/jiu627
12. Fourgeaud J, Magny JF, Couderc S, et al. Clinical value of serial quantitative analysis of cytomegalovirus DNA in blood and saliva over the first 24 months of life congenital infection: the French Cymepedia Cohort. J Pediatr. 2023; 253:197-204. doi: 10.1016/j.jpeds.2022.09.040ï