

## Multiple regression model to predict high cytomegalovirus immunoglobulin G avidity level in pregnant women with IgM positivity

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### Abstract

**Aim:** We established a model to predict high cytomegalovirus (CMV) immunoglobulin (Ig)G avidity index (AI) levels using clinical information to contribute to the mental health of pregnant women with positive CMV IgM.

**Method:** This retrospective cohort study included 371 pregnant women with IgM positivity at <14 weeks of gestation. Information on women was obtained from medical charts. Congenital infection was confirmed by polymerase chain reaction using amniotic fluid or neonatal urine. The IgG AI cutoff value for diagnosing congenital infection was calculated based on receiver operating characteristic curve analysis. Between-group differences were assessed using Mann–Whitney *U*-test or  $\chi^2$  analysis. Factors predicting high IgG AI were determined using multiple logistic regressions.

**Results:** There were 10 congenital infections, and the cutoff value of 31.75 for IgG AI was optimal in pregnant women for diagnosing congenital infection in their newborns. The pregnant women were divided into two groups (high or low IgG AI groups based on IgG AI cutoff value). There were significant differences in the IgG and IgM levels, maternal age, clinical signs, and number of women with one parity between the two groups. These five predictor variables were included in the model. The significant predictors for high IgG AI based on our logistic regression analysis were IgM and the number of women with one parity. This model correctly classified the IgG AI level for 84.6% women.

**Conclusion:** This model is highly effective in predicting high IgG AI and enables in reassuring pregnant women immediately after the judgment of IgM positivity.



### Biography:

Masatoki Kaneko speciality is Obstetrics & Gynecology, and Neonatology. He studied at University of Miyazaki and Lauson Research Institute, University of Western Ontario, Canada.

He is the dean of Graduate School of Nursing Science. He has published more than 35 papers in reputed journals and has been serving as a board member of Japan Society of Maternal Health and the president of Miyazaki Society of Maternal Health. He received a Young Investigator Award, Japan Society of Obstetrics and Gynecology in 2001.

### Speaker Publications:

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3. O. P. Kovtun, N. S. Davydova, R. F. Mukhametshin, Perinatal regionalization system: efficiency analysis, *Rossiyskiy Vestnik Perinatologii i Pediatrii (Russian Bulletin of Perinatology and Pediatrics)*, 10.21508/1027-4065-2020-65-3-18-24, 65, 3, (18-24), (2020).
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