

Knowledge and Hygiene Practices of Pregnant Women Regarding CMV Infection

Gebe Kadınların CMV Enfeksiyonu Hakkında Bilgi Düzeyleri ve Hijyen Tutumları

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ABSTRACT

Aim: Cytomegalovirus (CMV) is a herpes virus and a common pathogen responsible for congenital infection in 4-23% of all newborns. The objective of this study was to assess the pregnant women's knowledge of CMV infection and to investigate their hygienic practices when attending to their young children.

Material and Method: This study was carried out at Bezmialem Vakif University Medical Faculty obstetric outpatient clinic. Inclusion criteria were pregnant women 1) who were able to communicate in Turkish, 2) who had at least one child < 5 years of age. We excluded pregnant participants who were health workers. Participants were approached by a medical college student and informed about the study. After giving consent they were asked to fill out a questionnaire which included demographic questions, knowledge questions regarding CMV infection and questions regarding hygienic practices when giving care to their young children. The questionnaires were collected and a total behavioral score was calculated taking into account positive and negative hygienic practices.

Results: A total of two hundred and twenty five participants were involved in the survey. Only 86 (38.2%) of the participants in our study had heard of congenital CMV infection. CMV awareness was correlated with having higher education ($p=0.02$) and employment status ($p=0.03$). The behavioral score was not correlated with age ($p=0.98$), educational attainment ($p=0.11$), employment status ($p=0.9$) or number of children, ($p=0.87$).

Conclusion: In this cross sectional study we have shown that CMV infection knowledge of mothers is low and that they do not adhere to adequate sanitation measures. Strategies to raise awareness and initiating education programs are necessary as further action.

Keywords: Cytomegalovirus, patient knowledge, awareness, behavior, pregnancy

ÖZET

Amaç: Sitomegalovirüs (CMV) herpes virüs ailesinin bir üyesidir ve yenidoğanlarda konjenital enfeksiyonun %4-23'ünden sorumlu bir patojendir. CMV için bir aşı mevcut değildir. Birçok enfeksiyon için geçerli olduğu gibi maternal CMV enfeksiyonu da "el yıkama" gibi basit hijyenik önlemlerle önlenir. Bu çalışmadaki amacımız gebe kadınların CMV enfeksiyonu hakkında bilgi düzeylerini ölçmek ve çocuklarına bakım verirken uyguladıkları hijyenik yöntemleri araştırmaktır.

Gereç ve Yöntemler: Bu kesitsel çalışmada kliniğimizin gebe polikliniğine başvuran 225 gebe kadına bilgi düzeyi ve hijyen uygulamalarını değerlendirmek üzere anket dağıtıldı.

Bulgular: Çalışmamızın katılımcılarından 86(%38.2) gebe daha önceden CMV enfeksiyonundan haberdardı. CMV hakkında bilgi sahibi olmak, daha yüksek eğitim düzeyi ($p=0.02$) ve çalışma durumu ($p=0.03$) ile bağlantılıydı. Katılımcıların %90'ı çocuk bezini değiştirdikten sonra ellerini yıkamadığını belirtirken, %82.6'sı çocuğunun emziğini ağızıyla temizlediğini ifade etti. Ayrıca aynı çatal bıçak kullanımı ve ortak tabaktan yemek oldukça yaygındı.

Sonuç: Bu kesitsel çalışmamızda gebe kadınların CMV enfeksiyonu hakkında bilgi düzeylerinin düşük olduğunu ve hijyenik önlemlere yeterince dikkat etmediklerini gösterdik. CMV enfeksiyonu hakkında farkındalık geliştirmek ve gebe kadınlara hijyen uygulamaları hakkında eğitim verilmesini sağlayacak stratejiler geliştirilmesi gerektiğine inanıyoruz.

Anahtar kelimeler: CMV, konjenital enfeksiyon, gebelik, hijyen, enfeksiyon kontrolü

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Introduction

Similar to adults and children, pregnant patients can acquire viral infections. Infections are a cause of special concern during pregnancy as some infections are more severe in pregnant women and may potentially harm the fetus or newborn. Cytomegalovirus (CMV) is a herpes virus and a common pathogen responsible for congenital infection in 4-23% of all newborns [1]. Data is available from the U.S.A and it is estimated that 30.000 babies each year are born with congenital infection and 5500 of these babies develop CMV-related disability [2]. Congenital CMV is the preeminent cause of nongenetic sensorineural hearing loss, and is also a common cause of neurodevelopmental delay, loss of vision, fetal and neonatal death [3].

CMV infection can arise as a consequence of primary maternal infection, reinfection with a different CMV strain, or reactivation of a latent infection [4]. In pregnancy, the infection caused by CMV is usually asymptomatic. Only 5% may experience a mononucleosis-like syndrome [5]. The congenital infection risk is higher when the maternal immune status is negative [6,7]. However infection in seropositive women have been reported [8]. Two-thirds of congenital CMV cases result from reinfection with a new CMV strain or reactivation of latent virus [9]. In an epidemiological outcome review it was concluded that congenital CMV infection because of a recurrent infection resulted in similar consequences as that due to a primary infection during pregnancy [10]. No vaccine is available for the CMV. As is true with many infections ;maternal CMV infection can be avoided by simple hygienic precautions such as effective hand-washing.

The objective of this study was to assess the pregnant women's knowledge of CMV infection and to investigate their hygienic practices when attending to their young children.

Material and Methods

This cross-sectional cohort study was carried out at Bezmialem Vakif University Faculty of Medicine obstetric outpatient clinic after an institutional ethical review board approval was obtained (Bezmialem Vakif University Ethical Review Board Meeting 24.4.2018 Approval number: 50.5.4). Inclusion criteria were pregnant women 1) who were able to communicate in Turkish, 2) who had at least one child < 5 years of age. We excluded pregnant participants, 1) who were health workers, 2) who had medical problems which required hospitalization and 3) maternal history of major depressive disorders. Participants were approached by researchers and informed about the study. After giving consent they were asked to fill out a self-developed questionnaire which included demographic questions, knowledge questions regarding CMV infection and questions regarding hygienic practices when giving care to their young children. The questionnaires were collected and a total behavioral score was calculated taking into account positive and negative hygienic practices.

Statistical analysis

The statistics were performed using SPSS version 22.0 (IBM Inc, Armonk, NY, USA). After using the Kolmogorov-Smirnov distribution function nonparametric variables were evaluated by the Kruskal Wallis test and the Mann Whitney-U test. Descriptive statistics were given as mean and standard deviation for continuous variables and frequency and percentage (%) for categorical variables. A P value of .05 was considered statistically significant. Correlations were performed using the Spearman's correlation test.

Results

The distribution of answers given to our questionnaire are demonstrated in Table 1. A total of two hundred and twenty five participants were involved in the survey. The mean age was: 29.6 ± 4.9 . Sixty three (28%) of the participants had primary education. Forty three (19.1 %) had secondary level and 58 (25.8%) had high school education, 61 (27.1%) had a university degree or more. Sixty-one (27.1%) of the participants had attended college. Most of the participants were unemployed (n=180, 80%). One hundred and thirty three participants (59.1%) had 1 child, 60 participants (26.7%) had two children and 32 participants (14.2%) had 3 children or more.

Only 86 (38.2%) of the participants in our study had heard of congenital CMV infection. CMV awareness was correlated with having higher education ($p=0.02$) and employment status ($p=0.03$). We calculated a behavioral score taking into account positive and negative hygienic behaviors. The behavioral score was not correlated with age ($p=0.98$), educational attainment ($p=0.11$), employment status ($p=0.9$) or number of children, ($p=0.87$).

Discussion

Most of the participants (61.8%) in our study lacked knowledge of congenital CMV infection and their self reported hygiene habits were poorly. A staggering 90% admitted to "never" washing their hands after changing their child's diaper and 82.6 % claimed that they put their child's pacifier in their mouth. Additionally sharing cutlery and food was very common. Some of the practices followed by mothers may be mistaken for loving mother-child intimacy such as kissing the child on the mouth or sharing food. These practices were similarly common in the study conducted by Cannon et al. in the U.S [11].

Our results indicate that pregnant patients lack the basic hygiene knowledge to prevent CMV infection and that an intervention to educate them of the consequences is necessary. There is available data from randomized trials in the community setting which conclude that education regarding basic sanitation measures to pregnant mothers markedly curtail the incidence of maternal infection during pregnancy [12-14]. Pregnancy is a sensitive time period in which the mother is susceptible to behavioral change in fear of the safety of her child. In a study by Adler et al; the



researchers concluded that hygiene counselling could reduce the risk of CMV infection by 85% in pregnant women [15].

Exposure to secretions and urine of young children is a leading cause of CMV infection for pregnant women. This is because children with CMV infection have been shown to shed CMV in their secretions for up to years [16]. American College of Obstetrics and Gynecology states that the most effective intervention to minimize CMV disease is educating pregnant women about preventive hygiene measures [17]. In addition, years of medical evidence indicates that hand washing reduces risk of infection for many pathogens [18]. However, hygiene practices do not appear to be discussed by care givers, and women are denied knowledge of the CMV infection and possible preventive measures [19]. This was demonstrated in a national survey of obstetricians in which less than half of the participating doctors had counselled their patients regarding CMV prevention measures [20]. Korver and colleagues investigated the knowledge of congenital CMV infection among doctors in the Netherlands. In this study they found that only 1/5 of the participants, including those working with pregnant patients, were aware that kissing children, and changing diapers, are risk factors for CMV transmission [21]. We believe in order to reduce CMV transmission rate the first step is to advocate awareness of congenital CMV among doctors who provide care for pregnant women followed by formulating public health strategies to educate the pregnant women that they care for.

Conclusion

In this cross sectional study we have shown that CMV infection knowledge of mothers is low and that they do not adhere to adequate sanitation measures. Strategies to raise awareness and initiating education programs are necessary as further action.

Conflicts of interest

The authors declare no conflicts of interest.

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Table 1: The distribution of answers to the questionnaire.

	Always n/%	Frequently n/%	Sometimes n/%	Never n/%	N
I wash my hands after wiping my child’s nose.	7(3.1)	58(25.8)	45(20)	115(51.1)	225
I wash my hands after changing my child’s wet diaper.	2(0.9)	3(1.3)	17(7.6)	203(90.2)	225
I wash my hands after changing my child’s soiled diaper.	9(4)	3(0.9)	12(5.3)	202(89.8)	225
I kiss my child from the mouth.	139(61.8)	70(31.1)	9(4)	7(3.1)	225
My child and I eat food from the same plate.	95(42.2)	106(47.1)	16(7.1)	8(3.6)	225
I share utensils (spoon,fork,cup) with my child.	141(62.7)	61(27.1)	8(3.6)	15(6.6)	225
I clean my child’s passifier in my mouth.	186(82.6)	31(13.8)	2(0.9)	6(2.7)	225
I share food with my child (taking bites)	47(20.9)	151(67.1)	15(6.7)	12(5.3)	225