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Communication Study

What information do Dutch midwives give clients about toxoplasmosis, listeriosis and cytomegalovirus prevention? An exploratory study of videotaped consultations

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ABSTRACT

Objective: To assess information provided by midwives about methods to prevent toxoplasmosis, listeriosis and cytomegalovirus, and whether the amount of provided information varied according to clients' and midwives' characteristics.
Methods: Intake consultations with 229 clients in four midwifery practices were videotaped between August 2010 and April 2011. Videotaped intake consultations, where infectious disease prevention were discussed, were evaluated, using a specifically designed nine-item scoring tool. Midwives and clients filled in a questionnaire about their background characteristics. Multilevel linear regression analysis was performed to establish associations between the amount of information provided and clients' and midwives' characteristics.
Results: In total 172 consultations with fifteen midwives were suitable for analyses. Information about not eating raw or undercooked meat and not consuming unpasteurized dairy products was provided most often. Information about not sharing eating utensils with small children and thoroughly reheating all ready-to-eat foods were rarely provided. More information was provided when the client was a primigravidae or the consultation lasted longer than 50 min.
Conclusion: Information on infectious disease prevention given to pregnant women by primary care midwives was insufficient; especially for cytomegalovirus prevention.
Practice implications: A guideline for professionals on preventable infectious diseases may be useful to inform pregnant women properly.

1. Introduction

During pregnancy, maternally acquired infections with *Toxoplasma gondii*, Listeria *monocytogenes* and cytomegalovirus (CMV) can have severe effects on the fetus and child, and can be prevented by relatively small changes in lifestyle and behavior habits of pregnant women [1].

In the Netherlands, the incidence rate of congenital toxoplasmosis is two infected children per 1000 live births, which is ten times higher than in Denmark and twenty times higher than in Ireland [2,3]. Possible consequences include: mental retardation, blindness, and epilepsy for congenital toxoplasmosis [4]. Methods to prevent toxoplasmosis are: not eating raw or undercooked meat, thoroughly washing fruits and vegetables, avoiding soil contact, and not changing the cat litter box [5]. The estimated incidence rate of pregnancy-related listeriosis in the Netherlands is between 1.3 and 2.4 cases per 100,000 pregnancies over 24 weeks of gestation [6]. Although listeriosis is a rare disease it occurs

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seventeen times more likely in pregnancy than the general population and can have serious consequences, including: preterm labor, spontaneous abortion or stillbirth [6–8]. Methods to prevent listeriosis are: not consuming unpasteurized dairy products, not consuming vacuum pre-packed smoked fish, thoroughly washing fruits and vegetables and thoroughly reheating all ready-to-eat foods [5]. The estimated birth prevalence of CMV in the Netherlands is 0.54%, which translates in approximately 1000 infants with a congenital CMV infection annually [9]: a prevalence rate approximating that of Down syndrome [10,11]. Possible consequences of CMV infection include: mental retardation, vision loss, microcephaly, motor disabilities and hearing loss [12]. Methods to prevent CMV infections include: washing hands after diaper change and not sharing utensils with small children [5].

In the Netherlands, healthcare providers do not routinely screen for toxoplasmosis, listeriosis and CMV during pregnancy but provide health education and they can provide written materials about methods to prevent these infections. At this moment there are several guidelines in the Netherlands for the prevention of toxoplasmosis, listeriosis and CMV, but there is no overall document presenting risk factors, preventive methods and ways how a midwife should inform pregnant women during prenatal care. Although there is no strong evidence about health education as an effective tool in reducing infections in pregnancy, preliminary evidence suggests that primary prevention through health education may help to reduce the burden of congenital infections [12–16]. In addition, studies suggest that the success of health education depends on the active involvement of the health care professional and that written recommendations are insufficient to change behavior [10,13]. However, health care providers do not always give information to their pregnant clients about methods to prevent infections [8,17–20]. Reasons cited for not educating clients are lack of knowledge of the risk factors, insufficient time, or because these have a lower priority than other pregnancy related risks [8,18,21,22]. Knowledge of infectious diseases among health care providers appears to increase at a more advanced career stage [23,24]. In addition, as ethnic origin of clients may influence awareness of infectious diseases, one may expect that the ethnic origin of midwives can also be a factor in the likelihood of providing disease prevention information to clients.

Many pregnant women are not aware of the danger posed by infections during pregnancy and do not act to prevent them [21,25–32]. Our own recent study from the Netherlands showed that pregnant women were not aware of all methods to prevent toxoplasmosis, listeriosis or CMV [28]. Studies showed that pregnant women's infectious disease knowledge and awareness may differ between age, educational level, parity, marital status and ethnic-origin [21,25–28,32,33].

Midwives are considered to be one of the most important sources of health education for pregnant women in the Netherlands because most pregnant women start their prenatal care in primary midwifery care [34]. Health education about methods to prevent infectious diseases is embedded in the intake consultation, and should last 35 min [35].

Infections with toxoplasmosis, listeriosis and CMV can cause serious consequences in the fetus, but can be prevented in pregnancy by behavioral change of pregnant women, and verbally provided information by health care providers seems the most effective to establish behavioral change in pregnant women. Therefore, it is important to understand if and how midwives are providing information about infectious disease prevention to pregnant women, and if there are any differences in midwives' and clients' characteristics in the amount of provided or received information. To the best of our knowledge, no research has examined information regarding infectious disease prevention provided to pregnant women by primary care midwives, by using videotaped consultations. We objectively provided insight in the actual verbally provided health education. We aimed to study what information primary care midwives in the Netherlands provided to their clients during the first prenatal visit about preventive measures to avoid toxoplasmosis, listeriosis and CMV, by using videotaped consultations. We examined the amount of information provided and whether the information varied according to clients' and midwives' characteristics.

2. Methods and materials

This study was embedded in the DELIVER study, a large scale multi-center multidisciplinary prospective study into the quality and provision of primary midwifery led care in the Netherlands. Details of the design of the DELIVER study are described elsewhere [36]. The DELIVER study, including videotaping of consultations, was approved by the Institutional Review Board and the Medical Ethics committee of the VU University Medical Center Amsterdam.

2.1. Study population

From the twenty primary care midwifery practices participating in the DELIVER study, four practices were purposively sampled based on their practice size, because the amount of midwives working in a practice may influence their delivery and organization of care, and based on the location as certain subgroups of pregnant women (e.g. ethnic origin, level) vary according to region in the Netherlands, and participated between August 2010 and April 2011. Midwives were eligible for participation if they were qualified as a midwife and if they worked in one of the participating primary midwifery care practices. Consecutive clients, and if present their partners, who were cared for by participating midwives for their first consultation for a 'new' pregnancy were eligible if they had reached the legal age of consent of 18 years or older and were able to understand Dutch or English. All eligible clients were informed about the study and were invited to take part. Participants who wanted to take part in the study signed an informed consent form prior to the consultation.

2.2. Study procedure

We examined the information on methods to prevent toxoplasmosis, listeriosis and CMV provided verbally by midwives to pregnant women (clients) during their first prenatal consultation by using recorded consultations on video. We did only assess the verbally provided information to clients and not additional information that may have been provided on paper. We asked all midwives to record ten to twenty intake consultations on video. The unmanned camera was positioned to show the midwife's full face; the client and their partner were seen from behind, from the side, or not at all.

In addition to the recorded video consultations, midwives completed a questionnaire which provided information on demographic and professional characteristics, i.e. age, program of midwifery education, and number of years of work experience.

We asked clients as well to complete a questionnaire, preferably prior to the consultation, to provide baseline information about age, ethnic origin, marital status, highest achieved educational level, and gravidity. If clients ran out of time, they could complete the questionnaire at home even though this involved the risk that clients would forget to return the questionnaire.

Data from the videotapes were linked with the data from the questionnaires completed by clients and midwives, by using anonymized identification numbers. We excluded consultations from all analyses for which this link could not be made.

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