

ORIGINAL RESEARCH

Primary care nurses' knowledge on Zika virus infection during pregnancy

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ABSTRACT

Cases related to Zika Virus infections in Brazil have become a severe public health problem due to its relation to microcephaly and other neurological and development problems in newborn babies of mothers who were infected by the Zika virus. Nurses are vital professionals in combating this infection, both for prevention and vector control; as well as handling the target public. Therefore, the research aimed to investigate Primary Care nurses' knowledge on Zika virus infection during pregnancy. It is a descriptive field study with qualitative approach carried out at Family Health Strategy, in the city of Cajazeiras, Paraíba, Brazil. Semi-structured interviews were conducted for data collection, which were submitted to thematic-content analysis. The nurses replied that there is not much information about Zika virus infections, and reported brain impairment as the main consequence for the newborn baby. Nurses also revealed that many women of the community showed negative feelings towards the pregnancy, and they pointed out the importance of health education actions in the community for dissemination of information on Zika virus infection control and prevention. Nurses' contribution regarding the assistance provided to the community is considered satisfactory. However, there was a need to bring efficient and updated professional training to the reality of each community. Therefore, it is suggested that training be provided through continued health education to professionals.

Key Words: Nurses, Primary health care, Zika virus infection, Pregnancy

1. INTRODUCTION

Zika virus (ZIKV) is an arbovirus of the Flavivirus genus, transmitted in Brazil through the *Aedes aegypti* mosquito. This virus was initially isolated in a rhesus monkey in Zika forest, Uganda, in 1947. The first documented human infection happened in 1954. The first epidemic of this virus happened from October 2013 to March 2014, with 49 confirmed cases in Yap island, French Polynesia. The transmission of ZIKV in Brazil was recorded in the first half of 2015. Until

the first epidemic, there had only been documented 14 human cases in all medical literature.^[1]

As it is not a well-detailed condition, its clinical aspects and the natural history of ZIKV infection are based in a limited number of cases. Therefore, it is estimated that less than 20% of human infections are a result of clinical manifestations, asymptomatic infections being more frequent. When there are symptoms, the infection may present low fever, maculopapular rash, arthralgia, myalgia, headaches, conjunctival

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hyperemia and, less frequently, edema, odynophagia, dry cough and gastrointestinal changes, mainly vomit.^[2]

However, related cases to this disease in Brazil have become a serious public health issue, as the infection is associated with the increase of microcephaly's apparent incidence, as well as other neurological and development problems in newborn babies of mothers who were infected by the virus. In Brazil, from March 2015 to April 2016, it was recorded over 5000 cases of microcephaly in newborn babies, which represents an increase of twenty-fold compared to the year 2014.^[3]

Most newborn babies with microcephaly or other illness due to ZIKV infection are children born of women of unfavourable economic class. It is known that the living conditions in which many women are inserted can influence whether or not they are infected by the virus. Poor sanitation and housing conditions, poor distribution of water and need for water storage are examples of situations which contribute to the proliferation of the mosquito, as well as the difficulties in relation to accessibility in health services.^[4]

Therefore, it is necessary to point out the importance of Primary Health Care (PHC) as a gateway to the healthcare network in the prevention of this problem in the pregnant community of its area of coverage. Thus, professionals of this field must be trained so that the community can enjoy quality assistance. Among these professionals, nurses have notoriety for their care and management work in Family Health Strategy (FHS), some of their duties being: educational actions that further promotion, prevention and recovery of health.^[5]

Hence, nurses play a vital role in health education actions of pregnant women in relation to ZIKV, for their work in conjunction with the community aims to develop more active strategies for both prevention and control of the vector, and clarify the possible consequences that the disease can cause to the pregnancy. Thus, the study aimed to investigate the knowledge of Primary Care nurses on ZIKV infections during pregnancy.

2. MATERIALS AND METHOD

This is a descriptive field study with a qualitative approach. Content Analysis proposed by Bardin^[6] was used as methodological and theoretical reference for data analysis.

The research was developed at the Family Health Strategy (FHS) in the city of Cajazeiras, Paraíba, Brazil, with a convenience sample comprised by 21 nurses. Inclusion criterion was: having at least six months of service; nurses who were on vacation or on medical or maternity leave during the data

collection period were excluded.

The data was collected between September and October 2016 using a tool developed by the researchers, which was a semi-structured interview. The interviews were recorded using a portable recorder, and were later described and analyzed according to the thematic-content analysis, according to the following steps: organisation of analysis, coding of results, thematic categorisation, inferences and computerisation of communication analysis.^[6] When considering the content analysis, the following categories a posteriori emerged:

- 1) Infection with little information;
- 2) Commitment to the newborn baby's health;
- 3) Referral to high-risk prenatal care;
- 4) Conduction of imaging examinations;
- 5) Fear of pregnancy;
- 6) Health Education in the community.

The study was approved by the Research Ethics Committee of Federal University of Campina Grande under the report number 1.758.898. The legal and ethical precepts of studies on human beings were respected. The participants were informed about the research, and authorization was requested by means of Informed Consent Form. The nurses contributors are represented in their statements by the letter "N" followed by a number, as exemplified: N1, N2, N3, N4, N5, N6, N7, N8, N9, N10, N11, N12, N13, N14, N15, N16, N17, N18, N19, N20, N21, in order to guarantee the anonymity and confidentiality of the informations.

3. RESULTS

3.1 Characterization of the research subjects

Out of the 23 acting nurses in Family Health Strategy in Cajazeiras, Paraíba, Brazil, a convenience sample was created, so 21 of them participated in this research, as they met the inclusion criteria and accepted to participate, 19 of whom were women and 2 men, aged between 20 and 40 years-old. They have been working as Primary Care nurses for 6 to 10 years.

The following statements were made by the nurses participants of the research, and organized in categories, as a strategy to clarify the results. Each statement is followed by the letter "N", meaning "Nurse" and their respective identification number (from 1 to 21) in the sample, for example: "N12".

3.2 Theme categories

Regarding the professionals' knowledge on ZIKV during pregnancy, the nurses expressed very similar opinions. Thus, two categories stood out:

Infection with little information

It is a new virus, it is still being studied (N1); it is a very new infection and we can't really say for certain what real damages it can cause during pregnancy (N17).

Commitment to the newborn baby's health

It can strike the child during its development, its brain, the ventricles, there is the issue of brain size formation and the child can get microcephaly (N3); it is a virus that is transmitted by Aedes aegypti and, in pregnant women who are affected by the virus, it causes congenital malformations, such as microcephaly, mental retardation, blindness (N6); in case the mother got this virus that it passes through the placenta and it reaches the fetus and causes this malformation (N7); it is an infection that reaches, overpasses the transplacental barrier with the pregnant woman, it is the issue of microcephaly that it causes (N8); congenital infection which in some cases causes not only microcephaly but also some congenital anomalies (N9).

When questioned about nursing care that professionals nurses developed/develop/would develop in case a pregnant woman who is suspected to be infected or confirmed to be infected by ZIKV, it was possible to extract the following categories:

Referral to high-risk prenatal care

She is referred to a high-risk prenatal care facility where she will be accompanied by both the unit and the obstetrician (N2); then came the regulation of the Health Department that we should follow up in the primary care and send to high-risk prenatal for evaluation and also consult the Basic Health Unit (BHU). (N3); and in case it is confirmed, it becomes a high-risk prenatal and high-risk prenatal is also forwarded to the city's referral where there is the obstetrician-gynecologist (N7).

Conduction of imaging examinations

You only have to be careful to do a morphology ultrasound to see if the child's structures are okay (N13); seeking to follow up with ultrasound (N17); we request routine exams, like serologies and ultrasounds, to detect whether or not the baby has the smallest cephalic perimeter (N19).

Regarding the repercussions that the ZIKV has brought to the pregnant population and the community, the speeches showed that many women had negative feelings towards pregnancy. Thus, the category emerged:

Fear of pregnancy

"there was also a decrease in the registration of new pregnant women because here at the station we had a lot of pregnant women, 20, 30, 40, today there are only 10, so this number must surely be associated with women's concern with this problem (N7); there were repercussions not only among preg-

nant women but among all women of childbearing age in general so those who were thinking of getting pregnant gave up (N17); the fear, the despair of those mothers made other women scared and they gave up getting pregnant (N19); if there is zika, the women tend to be scared of getting pregnant and they give up (N21).

Regarding ZIKV prevention or control activities in the pregnant community, the nurses informed us about the importance of health education actions in the community in disseminating information about the infection.

Health Education in the community

"but we even looked at houses in the community we gave orientations: use repellents, wear longer clothes, put screens (N5); we went on door to door advising people about those virus diseases, the problems they can bring (N7); We ran a few campaigns against zika on six Fridays (N8); we give lectures and deliver pamphlets, health agents go on door to door giving orientations (N12); but we gave several lectures here to the community, we developed actions with community health agentes, giving pamphlets and talking about mosquito control (N20).

4. DISCUSSION

The interviewees reported that because the studies about it were very recent, the disease caused by ZIKV was little publicized. It was a new disease with very few studies presented, especially in pregnancy. Therefore, it is worth noting that before the 2015 epidemic in Brazil, few cases of infection caused by the virus had been documented, emphasizing the lack of knowledge about it. However, since then, the main researchers in the field have been developing researches and publishing their results around the world due to increase in the number of suspected cases as well as the association with other intercurrents.^[7,8]

The virus is capable of crossing the placental barrier and it is the main cause of congenital ZIKV syndrome in newborn babies.^[9] Among the most common complications related to the virus, microcephaly has a greater prominence, due to its high incidence.^[10]

To identify microcephaly it is necessary to perform the measurement of the cephalic perimeter of the newborn baby, a routine method in puerperal visits for clinical follow-ups of children in order to recognize possible anomalies.^[8] For this reason, the Brazilian Ministry of Health has developed several protocols in order to define both cases of pregnant women with ZIKV and fetuses with suspicion of microcephaly associated with the virus infection. So, during this period with a disease not much in know about and new information being added to the care of newborns, nurses needed

to seek updated knowledge about the epidemic as well as train their staff to ensure access, transparency of information and holistic care for the mother-child binomial.^[11,12]

In the analysis of the category of referral to high-risk prenatal care, it was noted how important, in the view of the nurses interviewed, it is to provide these pregnant women a more specialized care. Therefore, it is understood that this conduct taken by primary care nurses may have influenced the reduction of complications for the fetus as well as for the mother, since she would have a care according to her needs.

The pregnant woman who is suspected of having a fetus with microcephaly has an obstetric ultrasound examination; and if confirmed, this woman is sent to a secondary reference for assessment of the fetus and differentiated care. The ultrasound examination aims to inform about the gender, gestational age, diagnose signs related to pathologies, alterations in fetal morphology (in the placenta, for example), as well as congenital malformations. This exam enables then the identification of the entire intrauterine universe.^[15] In this context, it is recognized a real necessity of using methods such as obstetric ultrasound to confirm the diagnosis of microcephaly in pregnant women who have been infected by ZIKV.^[16]

As for pregnant women's negative feelings described by nurses, they haunt both pregnant and fertile women. The fear of the disease and its repercussions make these women not seek health services as they should and to participate less in the process of prenatal care.

A pregnant woman infected with the Zika virus is not going to enjoy pregnancy in the same way a pregnant women not infected does due to the concern caused by the situation she is in, which leads to difficulties in experiencing this moment. It is vital then to stress the importance of a complete prenatal consultation with a well performed follow-up.^[9]

It is necessary then to work on the woman's feelings related to pregnancy, and consider the importance of emphasizing the role of the mother in the face of infection, the need for self-care, stressing that participation in the control of the disease is paramount. Therefore, information is not enough. It is necessary to provide "education" to the population, especially to pregnant women, in order to be able to deal with the issues related to the peculiarities of the infection.^[17,18]

Therefore, working on health education in the community provides the team, especially nurses, with an understanding of the reality and the environment in which the population of interest is inserted, which provides a greater contact in the search to remedy the needs of the community. Thus, the professionals know the peculiarities of this reality, and are able, with the help of the population, to realize ways

to develop actions of combating the virus. Therefore, for nurses this type of activity is of great importance, because it is from this activity that it is possible to make changes in health practices.^[19]

In light of the results presented, it is clear that the nurses in this study need to work more actively with their population, actively searching, to accompany and empower pregnant women on the subject that permeates the ZIKV, since according to the nurses many women reported being afraid of getting pregnant after the discovery of the association between the virus and microcephaly. Therefore, it is believed that actions that promote health education in the community is an important ally in the propagation of preventive measures, health promotion and support to all these women.

It should be noted that this study presents as a limitation the fact that it was carried out in only one city in the hinterland of Paraíba, requiring further studies on the subject, as environmental and socioeconomic conditions have a strong influence on infection by this virus. Furthermore, the research contains a small sample of nurses, meaning that the results cannot be faced as representative.

5. CONCLUSION

This study has shown that nursing professionals are conscious about ZIKV infections. However, knowledge about this infection was still a little restricted since there was not much information about it, the care offered by the professional then being dependent on the information that was emerging. Despite the difficulties faced in that moment due to the new challenges, it is considered satisfactory nurses's contribution regarding the assistance provided to the community as well as the decision making process for referral to high-risk prenatal care in cases where infection is detected or suspected so that it can be accompanied by specialized teams.

Despite the dedication of professionals to manage information regarding this scenario in community health, there was a need to bring efficient and updated professional training to the reality of each community where conditions such as low schooling and poor socioeconomic conditions are determinants of vulnerability for individuals. Therefore, there is a need for managers to provide continued education for health professionals so that the population can benefit from the supply of up-to-date information and prevention of diseases related to virus infection.

In light of the results, it is also suggested that professionals work with the community through health education actions, like campaigns and dialogue circles, in order to bring the population even closer to the health service and offer them

the necessary information on the subject. It is important to bear in mind that the problem surrounding the virus is still a reality, and that health and educational measures are fundamental to prevent the population from becoming ill, with

nurses being some of the key players capable of transforming the reality of the population's health.

CONFLICTS OF INTEREST DISCLOSURE

All authors declare that there is no conflict of interest.

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