

RAPID DIAGNOSIS OF HERPESVIRUS HOMINIS INFECTION OF CERVIX AND VAGINA BEFORE DELIVERY

M. BUJKO-KLISURA, V. ŠULOVIC,
A. OVČARIĆ,
V. MARINKOVIĆ-ŽIVANOVIĆ,
Lj. MARKOVIĆ, T. JOVANOVIĆ

Institute of Microbiology and Immunology
Clinic of Gynecology and Obstetrics
School of Medicine
University of Belgrade (Yugoslavia)

SUMMARY

The incidence of asymptomatic vaginal and cervical Herpes virus hominis shedding in a group of 51 pregnant women near term was investigated by the method of indirect immunofluorescence. All women were tested serologically by the method of microneutralisation in order to diagnose latent HVH type 1 or HVH type 2 infection. The shedding of HVH, in most cases, was the consequence of the activated HVH latent infection.

It was revealed that 13.72% of asymptomatic HVH type 1 shedding was from vagina alone, and 7.27% of asymptomatic HVH type 1 shedding was from cervix alone. The same percentage (17%) of HVH type 2 shedding was revealed from both the vagina and the cervix. All women whose cervical and vaginal smears showed positive HVH type 1 or HVH type 2 immunofluorescence were latently infected.

We have no direct data to refuse or confirm the suggestions that Caesarian section is recommended in women with genital herpes. The fact that both vaginal and cervical asymptomatic shedding of HVH occur during pregnancy indicates that these women undergo the virologic examination near term.

The evaluation of duration of asymptomatic shedding is needed. Close clinical and virologic observation will markedly reduce both clinical and subclinical HVH infection of the newborn infant. In such circumstances rapid diagnosis of HVH infection becomes extremely important in the pregnant women.

The immunofluorescent (FA) technic developed by Coons and associates (1) has become a powerful tool in many fields of biomedical sciences. Its application has contributed greatly in rapid diagnosis of viral infections.

The first attempt to use immunofluorescence for the diagnosis of Herpesvirus hominis (HVH) infection was by Biegeleisen and associates in 1959 (2), who examined specimens of scrapings from vesicular lesions of the skin for the presence of HVH antigen. After that the method has been used routinely for the diagnosis of HVH infections of skin, conjunctive, brain and urogenital organs. Only intracellular fluorescence with careful comparison to controls should be accepted as diagnostic, in order to avoid the false positive reaction.

Genital herpes infections have also been diagnosed by immunofluorescence with high specificity, within a few hours.

Herpesvirus hominis infection of the newborn and the association of the disease with maternal genital herpetic conditions has been well documented (3, 4, 5). Herpesvirus hominis may infect the fetus by transplacental transmission in utero, or the infant may be infected during birth, due to passage through the birth canal of the mother. In such circumstances the rapid diagnosis of HVH infection in pregnant women near term is very important as a fact which could assist in decisions for Caesarean section.

Both initial and recurrent genital HVH infection in the mother and symptomatic and asymptomatic episodes of disease may be associated with vertical transmission of HVH (6).

The incidence of asymptomatic vaginal and cervical viral shedding in a group of 51 pregnant women near term was investigated by the method of indirect immunofluorescence. All patients were examined serologically.

Table 1. — *Vaginal Herpesvirus hominis infection and the results of serological examination.*

Immunofluorescence	positive	negative	Microneutralisation test	
			positive	negative
Herpesvirus hominis type 1	7 (13.72%)	44 (86.28%)	39 (76.47%)	12 (23.53%)
Herpesvirus hominis type 2	9 (17.25%)	42 (82.75%)	21 (41.17%)	30 (58.83%)

MATERIAL AND METHODS

Cervical and vaginal swabs from women at the end of gestation without a history of genital HVH infection prior to or during this pregnancy, were taken.

The swabs were immediately put into transport medium (Eagle Basal Medium with 10% calf serum and penicillin). In the laboratory excess fluid was compressed from the swab and all the fluid was centrifugated. After centrifugation at 1600 rpm for 10 minutes, two smears of about 10 to 15 mm on clean microscope slide were made from pelet, and were fixed in cold acetone and prepared for indirect immunofluorescent staining (7). All women were tested serologically by the method of microneutralisation (8).

RESULTS AND DISCUSSION

13.72% of asymptomatic HVH type 1 shedding was from vagina alone (table 1), and 7.27% of asymptomatic HVH type 1 shedding was from cervix alone (table 2). The same percentage (17%) of HVH type 2 shedding was revealed from both the vagina and the cervix (table 1 and table 2).

The differences between the two types of HVH, specially in pathogenesis and mode of spreading, may explain the fact

that HVH type 1 shedding was more frequent from vagina than from cervix.

All women whose cervical and vaginal smears showed positive HVH type 1 or HVH type 2 immunofluorescence were latently infected and the titer of anti HVH antibodies was in range of 128-2048 for HVH type 1 antibodies and 8-32 for HVH type 2 antibodies.

Those results showed that asymptomatic viral shedding was the consequence of the activated HVH latent infection. The results of serological examination revealed that about 80% of examined women were HVH type 1 positive, and about 40% were HVM type 2 positive.

Recent studies of neonatal HVH infections have shown that majority (70%) of infants are born to mothers without signs or symptoms of disease (6). Cervical HVH infection may be an important factor in influencing pregnancy outcome. Most asymptomatic episodes of cervical HVH infection were noted in the later part of pregnancy and 14% of the women demonstrated asymptomatic shedding of HVH during gestation, indicating the importance of viral examination near term:

Table 2. — *Cervical Herpesvirus hominis infection and the results of serological examination.*

Immunofluorescence	positive	negative	Microneutralisation test	
			positive	negative
Herpesvirus hominis type 1	3 (7.27%)	38 (92.73%)	34 (82.92%)	7 (17.07%)
Herpesvirus hominis type 2	7 (17.07%)	34 (82.92%)	16 (39.02%)	25 (60.08%)

asymptomatic shedding of HVH from external genitalia was as frequent on occurrence as asymptomatic cervical viral shedding. The asymptomatic shedding of virus from external genitals may play a role in disease transmission⁽⁵⁾.

Interpretation of the data from different population groups is complicated because HVH genital tract infection can be modified by age, pregnancy, sexual activity, socioeconomic factors and other variables. Because of that fact the percentage of women with asymptomatic cervical HVH infection depends on the patient population studied. Cervical HVH infection may be an important factor influencing pregnancy outcome. Vontver *et al.*⁽⁵⁾ concluded that most asymptomatic episodes of HVH shedding are of short duration.

We have no direct data to refute or confirm the suggestions that Caesarean section is recommended in women with genital HVH infection.

CONCLUSION

The fact that both vaginal and cervical asymptomatic shedding of HVH occurs during pregnancy indicate that these wo-

men undergo the virologic examination near term. The evaluation of duration of asymptomatic shedding is needed. Close clinical and virologic observation will markedly reduce both clinical and subclinical HVH infection of the newborn infant. In such circumstances rapid diagnosis of HVH infection becomes extremely important in the pregnant women.

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