

ORIGINAL ARTICLE

Oropharyngeal Perinatal Colonization by Human Papillomavirus[☆]



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KEYWORDS

Human papillomavirus; Delivery; Neonatal; Oropharynx

Abstract

Introduction and objective: Human papillomavirus (HPV) infection is the most common human sexually transmitted disease. It is clinically relevant because this condition is necessary for the development of epithelial cervical cancer, and it is also a factor closely associated with the occurrence of diverse tumours and various benign and malignant lesions of the head and neck area. The infective mechanism in most of these cases is associated with sexual intercourse, but there is recent scientific evidence suggesting that HPV infection may also be acquired by other routes of infection not necessarily linked to sexual contact. One of them is vertical transmission from mother to child, either during pregnancy or at the time of delivery.

The aim of our research was to study maternal-foetal HPV transmission during childbirth in detail, establishing the rate of oropharyngeal neonatal HPV in vaginal deliveries.

Method: The presence and type of HPV viral DNA at the time of delivery in samples of maternal cervical secretions, amniotic fluid, venous cord blood samples and neonatal oropharynx in pregnant women (and their babies) were determined.

Results: The rate of oropharyngeal neonatal HPV colonization in vaginal deliveries was 58.24%.

Conclusions: The maternal and neonatal HPV colonization mechanism is essentially, but not exclusively, transvaginal.

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PALABRAS CLAVE

Virus del papiloma humano;
Parto;
Neonatal;
Orofaringe

Colonización orofaríngea perinatal por el virus del papiloma humano**Resumen**

Introducción y objetivo: La infección por el virus del papiloma humano (VPH) es la enfermedad de transmisión sexual más frecuente del ser humano. Su relevancia clínica radica en que tal condición es causa necesaria para el desarrollo de cáncer epitelial de cuello uterino y también un factor estrechamente asociado a la aparición de tumores y diversas lesiones benignas y malignas del área cráneo-cervical. El mecanismo infectivo para la mayoría de estos casos está asociado a la participación del individuo en prácticas sexuales de diverso tipo, pero existen en la actualidad evidencias científicas que indican la posibilidad de que dicha infección pueda ser también adquirida por otras vías de contagio no necesariamente ligadas al contacto sexual. Una de ellas es la transmisión desde la madre al hijo, bien durante la gestación, bien en el momento del parto.

El objetivo de nuestra investigación es profundizar en el estudio de la transmisión materno-foetal de VPH durante el parto, estableciendo la tasa de colonización orofaríngea neonatal por VPH en los partos vaginales.

Método: Se determinó la presencia y tipo de ADN viral de VPH en el momento del parto en las muestras obtenidas de las secreciones cervicales maternas, líquido amniótico, sangre venosa de cordón y orofaringe neonatal en las embarazadas (y sus recién nacidos).

Resultados: La tasa de colonización orofaríngea neonatal por VPH en los partos vaginales de madres inmunocompetentes portadoras del germen fue del 58,24%.

Conclusiones: El mecanismo de contaminación materno-neonatal por VPH es esencialmente, que no exclusivamente, transvaginal.

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Introduction

Human papilloma virus infection (HPV) is the most common human sexually transmitted disease.¹ Although information on this infection is very heterogeneous, it is estimated that between 80% and 90% of the population will come into contact with HPV in their lifetime.¹ The infection mechanism for most of these cases is associated with the participation of the individual in sexual practices of varying types, however, there is currently solid and growing scientific evidence to indicate that the infection might be acquired through other routes which are not necessarily linked to sexual contact.² One of these routes is mother-to-child transmission, either during gestation or at the time of delivery.

HPV infection is clinically relevant because the condition is a cause of epithelial cancer of the cervix (and other neoplastic and dysplastic lesions of the anogenital region) and is also closely associated with the appearance of tumours and various benign and malignant lesions in the head and neck whose clinical behaviour, even in "histologically benign" situations can be fatal for the patient; such as respiratory papillomatosis for example, which can cause a severe obstruction in the airway.³

Despite the above, our current knowledge about the clinical implications of congenital HPV infection, its possible transmission routes to the newborn and the theoretical role of maternal immunisation against HPV (primary or secondary) is very limited.

This research study seeks to investigate in depth mother-to-foetus transmission of HPV and provide information about its frequency and mechanism in our environment. Very little research has been undertaken into this aspect to date.

The principal objective is to establish the rate of oropharyngeal neonatal HPV colonization in vaginal deliveries from asymptomatic, immunocompetent mothers carrying the virus in their lower genital tract at the time of delivery.

As a secondary objective we aim to establish the amount of oropharyngeal colonizations which are not exclusively attributable to the passage of the foetus through the birth canal, as there is evidence of possible transmission via the placenta.⁴

Methodology

In order to achieve the abovementioned objectives, the presence and type of viral HPV DNA was determined at the time of delivery in samples obtained from maternal cervical secretions, amniotic fluid, venous blood from the umbilical cord, and from the newborns' oropharynx.

All the pregnant women attended in our centre during the first six months of 2014 were chosen as possible candidates, provided they met each of the following conditions:

- A history of a positive Hybrid Capture test (HC2 Digene® marketed by Qiagen) from the cervical cancer screening programme, provided this test had been undertaken in

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