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HPV Vaccine Confidence and cases of Mass Psychogenic Illness following immunization in Carmen de Bolivar, Colombia

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Abstract:

We report the case of multiple adverse reactions following HPV vaccination in Colombian adolescents in Carmen de Bolivar. In August 2012, the country introduced a school-based HPV immunization programme which successfully reached over 90% of the target population in the first year. In 2014, between May 29th and June 2nd, 15 adolescent girls in one school presented adverse reactions after vaccination and were admitted to the local hospital. Soon, videos of girls fainting, twitching, and arriving unconscious at emergency rooms started to appear in national news media as well as on social media platforms such as YouTube. The viral spread of these videos and disturbing images were followed by the viral spread of symptoms, with over 600 cases reported across Colombia. Thorough epidemiological investigation by Colombian health authorities found no organic association between the teenagers' symptoms and the HPV vaccine, concluding this was a case of mass psychogenic reaction to vaccination. Scientific evidence did

not appease the anxious public whose confidence in HPV immunization dropped dramatically. By 2016, HPV vaccine uptake among eligible girls declined to 14% for the first dose and 5% for the complete course, down from 98% and 88%, respectively, in 2012. We document this case and discuss the role of news and social media, particularly YouTube, as a driver of contagious psychogenic reactions. We also discuss the role of health authorities and government, and the importance of acting rapidly and appropriately to contain the spread of such symptoms and maintain public confidence in vaccines.

Keywords

Mass Psychogenic Illness, MPI, Psychogenic Reactions, HPV vaccine, Colombia, social media

Introduction

This paper examines the factors contributing to adverse events following HPV vaccination in a school-based programme in Carmen del Bolivar, Colombia(1). Videos of girls who had received the HPV vaccine and experienced fainting, twitching, and arriving unconscious at emergency rooms started to appear both in national news media as well as on social media platforms such as YouTube. The observed reactions were consistent with Mass Psychogenic Illness (MPI) (2) and have occurred in a number of countries following vaccination (3-5). Mass Psychogenic Illness is defined by a rapid spread of symptoms, with no organic cause, distressing group members(6). The nature of the symptoms reported are by no means exclusive to vaccination, but are

characteristic of MPI symptoms following a variety of triggers across different settings. We discuss the role that social media and news media may have played in influencing, and amplifying, the pattern of these adverse reactions and the viral spread of symptoms. Furthermore, we explore the disruptive effects of these events on immunization programmes, and the consequent risk of vaccine preventable disease. We emphasize the importance of herd immunity for decreasing HPV prevalence (7). Suspending active recommendation for the HPV vaccine can undermine public trust and risk lowering coverage and needed levels of herd immunity. Governmental and local authorities need to act promptly and appropriately in response to MPI to contain their contagious spread and public health impacts. In particular, extended periods of suspension of vaccine recommendation can exacerbate uncertainty and make it difficult to reinstate confidence.

Patient Presentation

In 2013, Colombia had one of the highest HPV immunization rates in the Americas, with coverage over 90% (8). The initial phase of the programme was directed to fourth grade schoolgirls, in private and public schools, who were nine years or older. The later phases were expanded to include girls from 6th to 11th grade to achieve a more comprehensive coverage.

Between May 29th and June 2nd 2014, in the rural municipality of Carmen del Bolivar,

Colombia, a group of 15 girls (older than 13 years old) from the same school, presented

symptoms including tachycardia, shortness of breath, and numbness of the limbs, and were admitted to the local hospital (1, 9). The initial hypothesis to explain these symptoms included possible food, water, lead, or pesticide poisoning, while parents were convinced that the second dose of HPV vaccine (Gardasil) administered two months earlier was the cause of the symptoms. The viral online spread of these videos and disturbing images were followed by the spread of symptoms following HPV vaccination, with over 600 cases reported across different Colombian cities in the following weeks, including Carmen de Bolivar. The peak of emergency room admissions coincided with peaks in media coverage and visits of Ministry of Health officials and politicians (1, 9) No cases were reported during the weekends and holiday periods.

A thorough epidemiologic investigation of 517 girls in Carmen de Bolivar who reported two or more the following symptoms—shortness of breath, numbness of limbs, chest pain, headache or fainting— was conducted by the Colombian National Institute of Health. No organic association between adverse reactions and the HPV vaccination was found(1). The Ministry of Health stood firmly by the scientific evidence and continued the HPV vaccination programme in the country. Nonetheless, the events had shaken public confidence in HPV immunization and by 2016, vaccine acceptance fell to as low as 14% for the first dose, and 5% for the full dosage (10, 11).

Discussion

The case of adverse events occurring after HPV vaccination with no confirmed biological cause has happened in different countries with consequences for HPV infection, HPV herd immunity, and longer-term risks of cervical cancer (6, 12). Following similar adverse reactions in Denmark, a safety review was conducted by the European Medicines Agency at the end of 2015 (13). In Japan, in March 2013, 50 girls reported adverse reactions following HPV vaccination and videos of their walking disturbances and seizures circulated on YouTube. This led to a suspension of proactive recommendation of the HPV vaccination by the Japanese government in June 2013 (5) and has still not been resumed as of May 2018, despite WHO declaring the HPV vaccine was safe in 2009, which was again confirmed in a new position paper on HPV vaccine safety in 2014, and a report by the Global Advisory Committee on Vaccine Safety again confirming the safety of the HPV vaccine in 2015 (14). Although the Japanese government provides HPV vaccination for free if requested, despite the suspension of proactive recommendation of the vaccine, HPV immunization rates in the country have dropped from over 75% to -as low as 0.6% (11, 15). The adverse reactions following HPV immunization campaigns, which happened in Colombia and elsewhere (as cited previously), were consistent with Mass Psychogenic Illness (MPI). MPI is defined as a rapid spread of illness signs and symptoms present within a cohesive group, originating from a nervous system disturbance which has no correspondent organic aetiology(16). MPI is a powerful group activity thriving in times of uncertainty and has contributed to undermining HPV vaccine confidence in a number of countries. It occurs in the

context of a credible threat that provokes great anxiety, from vaccine safety fears to a noxious, potentially toxic, odour in a school or workplace (17) and rapidly grows when the rumour explanation is both dangerous and believable enough (18). MPI is a collective conversion of stress into physical symptoms and seems to be linked to long-standing anxiety, which can engender dissociation and hyper-suggestibility. MPI collective events can be related to social and political contexts and histories. As Scheper-Hughes & Lock (19) discuss, emotions affect how illness is experienced; analyses of such strong collective manifestation of emotions, such as in a mass psychogenic illness event, can offer a key to understanding a well or poorly functioning social body and body politic.

There is increasing recognition that mass psychogenic illness (MPI) is underappreciated, under-reported, and poses a significant health and social problem, as well as financial impacts and stress on emergency services (20) (21). Although most episodes of MPI can be benign and resolved, complex cases occur when stress builds up and becomes chronic in a population. In regions where people live in fear, mass psychogenic events can affect hundreds, even thousands of people at a time and can suffer muscular tics, twitching, or shaking for weeks and months.

Not surprisingly, MPI outbreaks are not exclusive to vaccines or even to public health. In 1999 there was an MPI outbreak in the Belgian school system, caused by rumours of contamination in Coca-Cola products, which prompted a product recall costing the company an estimated US\$250 million(22).

Viral transmission of MPI via news media and social media

In Colombia, it is likely that social media was a vector for transmission and contagion of symptoms. MPI typically spreads through sight and sound, and the ubiquitous use of social media, especially the sharing photos and videos, allows visual or verbal contact with those displaying symptoms, and can trigger the spread of symptoms well beyond a local setting. Some reports suggest that we are witnessing a milestone in the history of MPI where the primary agent of viral spread will be through the internet and social media networks(18). Hence, public health officials and government face new obstacles when attempting to appease panic, as they are challenged by social media's power to spread anxieties not just locally, but globally.

Social media might have also changed the pattern of MPI outbreaks. Before the 20th century, most reports of MPI involved symptoms such as convulsions, contractures, tremors, paralyses, and even laughing, which are defined as motor MPI (17). Motor MPI, rarer in industrialized settings, was present in the 2011 Le Roy school outbreak in New York (23) when a group of girls developed facial tics and bizarre motor movements. Physicians noticed that there were occurrences of mimicry, where girls affected were presenting bizarre movements similar to YouTube and Facebook videos posted by other victims(18). As soon as media coverage stopped and social media posts and videos waned, affected girls began to recover.

MPI among adolescent girls has managed to tie the hands of high rank officials and scaremonger entire populations. The Colombian president, in an attempt to reassure the population, affirmed the symptoms being experienced by the school girls did not have a biological relation with the

HPV vaccine, but that they were, in fact, a mass psychogenic reaction provoked by anxiety and perceptions of risk following the HPV vaccination. Despite listening closely to families during many visits at Carmen de Bolivar, psychogenic diagnosis was not given to parents directly by officials, but broadcasted in the news which contributed to outrage in population (9). From the moment he delivered that speech to the little time it took for Ministry of Health officials to fly by helicopter to Carmen de Bolivar, a social turmoil was already in place. Parents and the population saw the MPI diagnosis as dismissing the girls' physiological distress and caused public outrage. Deeming such dramatic symptoms to be psychological was seen as woefully inadequate, even insulting in a rural population suffering from social deprivation, severely affected by intra-familial violence and guerrilla/paramilitary violence. The symptoms the girls experienced appear to be entangled with local politics(24) as they gave voice to the voiceless, to those abandoned and marginalized by political and economic circumstances.

The diagnosis of MPI can be either disabling or enabling for those afflicted. Panic caused by the perception that MPI symptoms are caused by HPV vaccination can provoke dramatic drops in HPV vaccination rates, as experienced in Colombia and Japan, compromising herd immunity and resulting in girls being unprotected against cervical cancer. At the same time, if MPI is well handled, an incident could be brief and harmless, and the negative consequences mitigated.

A person who falls ill, but whose symptoms cannot be organically linked to a specific cause, is still experiencing very real symptoms. When the veracity of their symptom is challenged, it can impede their recovery(18). Those who have their illness dismissed as 'all in the mind' can struggle even more to rid themselves of the symptoms. Faced with having to prove they are ill,

they can actually exacerbate their symptoms (25).

At the same time that acknowledgement of realness of symptoms is paramount, too much investigation and even exams can lead patients and population to think there is actually something wrong(26), which tends to reinforce psychogenic symptoms. Officials should aim to offer reassurance rather than promises to look deeper into an issue already thoroughly investigated.

The communication of psychogenic nature of symptoms, rather than providing comfort to families and sufferers, is usually met with resistance and mistrust (26). For this reason, adequate communication is fundamental for course of symptoms and resolution of events. Diagnosis should be given first hand and directly to family members before any statements are given to the media.

Mass psychogenic illness can have a disruptive impact on vaccination campaigns, impacting public trust and vaccine confidence, such as in the Colombia case. Public health officials and those in authority should strive for a balance between investigation, reassurance, and empathy, creating an atmosphere in which anxiety can dissipate, and fears subside, so that those affected can return to health with their dignity and self-respect unaffected. At the same time, forming cross-sectoral alliances have proven effective in recuperating HPV vaccine uptake in countries affected by MPI and following anti-vaccination efforts (27).

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