

Pulse wave velocity (PWV) is a surrogate marker of arterial stiffness, and increase in PWV has been associated with CVD and mortality. A research conducted by Tomiyama *et al.* [6] which included 7514 subjects, the PWV was determined and the result showed that seropositivity for hepatitis C virus was a significant variable for PWV independent from atherosclerotic risk factors. Thus, hepatitis C virus seropositivity was associated with increased PWV.

On the other hand, there were some studies which found no link between CHC and carotid artery atherosclerosis. Bilora *et al.* examined the same cohort of patients with CHC infection in 2001 and 2006 and in both instances found a lower prevalence of carotid IMT and plaques in patients with chronic viral hepatitis compared to uninfected controls.

HCV has also shown its link in clinical CVD. In this review, clinical CVD is defined by the following outcomes: CAD, MI, Unstable Angina and CHF. A research conducted by Tsui *et al.* [7] showed HCV seropositivity to be an independent associated risk for heart failure (HR = 2.13; 95 % CI: 1.19–3.80). This shows HCV link with cardiomyopathy and its ischemic effects on myocardium. In 2004, a research was carried out in Italy by Vassalle *et al.* [8] and it included 491 subjects, with 195 of them being in the control group. There was a report of increased rate of HCV seropositivity in CAD subjects vs. controls (6.3 vs 2; $p = 0.05$), which increased with the number of vessels affected ($p < 0.05$). It was also established that HCV seropositivity was an independent predictor of CAD. A large meta-analysis conducted to evaluate the impact of CHC on CAD by Ambrosino *et al.* [9] included 273,219 HCV-infected and 473,928 HCV-uninfected patients showed a significantly increased risk of CAD associated with HCV positivity (OR: 1.382, 95% CI: 1.103–1.732; $p = 0.005$).

An association between HCV infection and cardiovascular mortality was also established as seen in retrospective cohort conducted by Lee *et al.* [10] between 1991–2008, and was published in 2012, which included 23,820 participants. Increase in both hepatic and extrahepatic mortality when compared to seronegative controls and an increased risk of death from CVD based on diagnosis reported in the Taiwanese National Death Certification Registry. Additionally, mortality from CVD was significantly higher among patients who had detectable HCV RNA levels compared to those with undetectable HCV RNA but positive anti-HCV antibodies, suggesting antiviral therapy may have a role in decreasing HCV related CVD mortality.

Conclusions

According to the researches reviewed, it has been shown that HCV infection has as a link to cardiovascular diseases. Increase in factors like CIMT, PWV in CHC patients and coronary artery disease, hepatic & extrahepatic mortality in HCV seropositive patients, shows a connection between Hepatitis C virus infection and cardiovascular diseases.

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IMMUNIZATION ACTIVITY AND ERADICATION PROGRESS OF POLIOMYELITIS IN ENDEMIC COUNTRIES

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Relevance

Poliomyelitis (polio) is a highly infectious viral disease, which mainly affects young children. The virus transmitted by person-to-person spread mainly through the faecal-oral route or, less fre-

quently, by a common vehicle (e.g. contaminated water or food) and multiplies in the intestine, from where it can invade the nervous system and can cause paralysis [1].

In the first half of the 20th century, there was wide spread of poliomyelitis. It often attacks without warning, was highly contagious, and affected large, young populations, causing prolonged or permanent flaccid paralysis or death. There are arresting and disturbing accounts of the explosive nature of polio epidemics and the response of communities to these outbreaks. The effective control of poliomyelitis throughout most of the world has been a remarkable story of scientific and social progress. However, «wild» poliomyelitis is still endemic in parts of sub-Saharan Africa and the Indian subcontinent, and it continues to occur sporadically elsewhere. In addition, there is a small incidence of vaccine induced polio in infants and adults. Global eradication remains a goal of the World Health Organization and of public health policies throughout the world, with the eventual discontinuation of routine immunization [2]. The virus is shed in oral secretions for several weeks and in the feces for several months. It destroys the anterior horn cells in the spinal cord. Poliovirus infections can be divided into minor and major forms. The minor associated illnesses occur 1-3 days before the onset of paralysis, with gastrointestinal complaints such as nausea and vomiting, abdominal cramps and pain, and diarrhea. There are also systemic manifestations, such as sore throat, fever, malaise, and headache. This stage usually lasts for 2–3 weeks but may extend for up to 2 months; the presence of any tenderness in the muscles is evidence that the acute stage is not over. The major associated illnesses include all forms of central nervous system (CNS) disease caused by poliovirus, including aseptic meningitis (or nonparalytic polio), polio encephalitis, bulbar polio, and paralytic poliomyelitis, alone or in combination.

The clinical findings associated with an attack of polio are as follows:

1. Fever, neck stiffness (nuchal rigidity), and a pleocytosis in the cerebrospinal fluid (CSF).
2. Profound asymmetrical muscle weakness.
3. The initial phase is typically followed by some recovery of muscle strength, but permanent weakness results from necrosis of anterior horn cells.
4. Rarely, a transverse myelitis with paraparesis, urinary retention, sensory symptoms and signs, autonomic dysfunction (including hyperhidrosis or hypohidrosis), and decreased limb temperature may occur.

In the recovery stage, also known as the convalescent stage, the acute symptoms and muscle tenderness disappear, and the paralyzed muscles begin to recover. This stage lasts for up to 2 years after the onset of the disease. During this entire period, there is gradual recovery of the muscles; the recovery is rapid in the first 6 months but is slower during the subsequent months.

Residual-paralysis stage. The period beyond 2 years after the onset of the disease is called the residual-paralysis stage. No recovery of muscle power occurs in this stage. Deformities are liable to occur as a consequence of imbalance of muscle power and poor posture. There is also disuse atrophy of muscles and shortening of the leg from interference with growth. In neglected cases, gross fixed deformities of the hip, knee, and foot occur with severe wasting of muscles. Children with extensive paralysis and gross deformities shows gait abnormality [3].

Purpose of the study

To review the current epidemiological situation and eradication progress of poliomyelitis in endemic countries.

Materials and research methods

WHO released a strategic plan to fight polio in 2013, the plan had four strategies: 1) Detect and interrupt all poliovirus transmission, 2) Strengthen immunization systems and withdraw oral polio vaccine, 3) Contain poliovirus and certify interruption of transmission, 4) Plan polio's legacy. This strategy has been effective according to WHO, major challenges has been due to inability to reach children in undeveloped countries. Afghanistan, Pakistan, and Nigeria are the only countries where transmission of endemic wild poliovirus type 1 (WPV1) continues [4].

Results and discussion

Nearly three decades after the World Health Assembly launched the Global Polio Eradication Initiative in 1988, four of the six World Health Organization (WHO) regions have been certified polio-free [5]. Nigeria is one of three countries, including Pakistan and Afghanistan, where wild po-

liovirus (WPV) transmission has never been interrupted. In September 2015, after >1 year without any reported WPV cases, Nigeria was removed from WHO's list of countries with endemic WPV transmission; however, during August and September 2016, four type 1 WPV (WPV1) cases were reported from Borno State, a state in northeastern Nigeria experiencing a violent insurgency. The Nigerian government, in collaboration with partners, launched a large-scale coordinated response to the outbreak. No WPV cases have been reported in Nigeria since September 2016; the latest case had onset of paralysis on August 21, 2016. However, polio surveillance has not been feasible in insurgent-controlled areas of Borno State. Implementation of new strategies has helped mitigate the challenges of reaching and vaccinating children living in security-compromised areas, and other strategies were planned. Despite these initiatives, however, approximately 130,000–210,000 (28–45 %) of the estimated 469,000 eligible children living in inaccessible areas in 2016 have not been vaccinated. Sustained efforts to optimize surveillance and improve immunization coverage, especially among children in inaccessible areas, are needed [4].

Afghanistan and Pakistan form one common epidemiological block for poliovirus transmission [5]. In Afghanistan, WPV transmission during 2010–2011 predominantly occurred in the conflict-affected South Region and the adjacent Farah Province of the West Region. During 2010, 25 WPV cases were confirmed in Afghanistan [5]. To supplement surveillance for acute flaccid paralysis (AFP) and laboratory testing of stool samples, environmental surveillance (testing of sewage samples) was initiated in 2013 and includes 20 sites, 15 of which have detected WPV1 circulation [4].

In 2015 Afghanistan reported 20 wild poliovirus (WPV1) cases from 16 districts while in 2016 thirteen cases from 4 districts was reported. The transmission was limited to small geographical areas in the Eastern and Southeastern regions as well as the northern part of Southern Region. Eleven cases originated from two outbreaks whereas two cases represented persisting low-level endemic transmission. By the end of 2016 however, both the persisting continued low-level local circulation in Southern Region and the outbreaks in Eastern and Southeastern regions seem to have ceased. Following this outbreak Regional Rapid Response teams conduct detailed case and epidemiological investigations. As required, these investigations are further supported through engagement of the National Rapid Response Team. The rapid response teams consist of representatives from the MoPH, WHO, UNICEF, the Centers for Disease Control and Prevention, and the Bill & Melinda Gates Foundation with expertise in epidemiological investigations and the management of outbreak response activities [3].

Fourteen WPV1 cases were confirmed in Afghanistan in 2017, during January-May 2018, eight WPV1 cases were reported, twice the number reported the previous year. Access to children for supplementary immunization activities (SIAs) (mass campaigns targeting children aged < 5 years with oral poliovirus vaccine (OPV), regardless of vaccination history), which improved during 2016 to early 2018, worsened in May 2018 in security-challenged areas of the southern and eastern regions. To achieve WPV1 eradication, measures to maintain and regain access for SIAs in security-challenged areas, strengthen oversight of SIAs in accessible areas and to reduce the number of missed children [4].

Pakistan is the third polio endemic country. Due to about 40 vaccinators being killed from 2012 to 2014, year 2014 pushed the country into the deep sea of difficulties, as number of cases rose to red alert level of 328. Security situation has adversely affected the whole immunization coverage campaign. Worse perception of parents about polio vaccine as in Karachi and FATA, the high risk zones, makes 100 % coverage unattainable. Minor and perhaps delayed payments to polio workers results in decline of trained manpower for vaccination. In 2016, Pakistan reported 20 WPV1 cases; as of September 25, 2017, five cases have been reported for 2017, representing a 69 % decrease from the 16 cases reported during the same period previous year. The WPV1 cases reported in 2017 occurred in Punjab, Gilgit-Baltistan, Sindh, Khyber Pakhtunkhwa, and Balochistan provinces. During 2016, WPV1 cases were reported from 14 districts, compared with only five districts to date in 2017.

All five WPV1 cases reported in 2017 occurred among children aged <36 months. Only one of these five children had never received a dose of OPV, A second WPV1 case in 2017 occurred in a child who had received no OPV through routine immunization services, but had received three OPV doses through SIAs.

Concomitant with the decrease in the number of WPV1 cases, transmission of several genetic lineages detected in 2015 was apparently interrupted during the reporting period, particularly during the second half of 2016 and first half of 2017. WPV1 isolates from at least two main genetic clusters (groups of polioviruses sharing ≥ 95 % sequence identity in the viral capsid protein VP1) have been detected during the 2016–2017 low transmission season by AFP surveillance, indicating continued circulation in the core reservoirs in the Sindh province and Quetta district. One case of paralysis associated with cVDPV2 was detected in the Quetta in 2016; no cVDPV2 cases have been detected in 2017 to date [5].

Conclusion

In September 2015 Nigeria was removed from the list of polio endemic countries but a new strain resurfaced. In Abuja 5 March, 2018 the World Health Organization (WHO) has recommitted to eradication of polio, promoting health through the life course, combating communicable and non-communicable disease, and supporting universal health coverage through government's primary healthcare revitalization agenda over the next biennium (2018–2019). Main problem Nigeria, Pakistan and Afghanistan faces currently is due to the inability to reach children in rural areas.

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KNOWLEDGE OF HIV SPREAD IN MODERN AGE

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Relevance

HIV/AIDS has become one of the most devastating diseases humanity has ever faced [1]. The impact of HIV/AIDS has caused much consternation among policy-makers as it threatens to erode socio-economic through its associated increase in morbidity and mortality of people in the productive age group [2]. In this, there is awareness among young people. Youth are at an increased risk of HIV and account for about half of the new HIV infections in many nations [3]. Being an important period for social development, the adolescent and young adulthood stages are critical for promoting healthy attitudes and behaviours to protect young people from HIV. Their elevated risk of HIV infection has been attributed to their lack of knowledge and engagement in risky sexual and injection behaviours; calling for targeted educational interventions in improving their HIV knowledge and decreasing their risky behaviours [4]. Increasing HIV knowledge has been suggested as an effective HIV preventive behavioural intervention across different contexts. Elevating HIV knowledge creates motivation for risk reduction and has been associated with increased safe sex practices and HIV testing and treatment uptake [5].

Purpose of the study

To evaluate and analyse the HIV/AIDS knowledge among medical undergraduate students.

Material and research methods

We examined 45 students, in which 15 students were from 1st, 2nd, 3rd course of study respectively, 19 (42 %) male, 26 (58 %) female. The age ranging from 16–24 years of age; median age of the respondents was 19 years of age. A cross-sectional study was conducted using structured questionnaires among conveniently selected students enrolled at Gomel State Medical University, Bela-