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Review Article

Insecurities and Dogs: An Obstacle to the Eradication of Dracunculiasis

Aja Kalu[1*],Nwufo Amanda[2]

Department of Care of the Elderly, Barking, Havering and Redbridge University Hospital, NHS Trust, Romford, Essex, UK; [2] Department of Public Health, University of Chester, Chester, UK.

ABSTRACT

Dracunculiasis is a parasitic worm infection also known as Guinea Worm Disease (GWD). It is caused by a nematode called Dracunculiasis Medinensis. It belongs to a group of communicable disease named Neglected Tropic Disease (NTD). Dracunculiasis is caused by drinking water contaminated with the vector copepods (water fleas). Although the disease is not fatal, the sores caused by the emerging worm in the lower limb can become secondarily infected and complications such as sepsis, tetanus can ensue. Also, the sores can cause abscess and cellulitis, leaving the individual incapacitated for weeks which extends beyond the emergence of the worm. Over the last three decades, the prevalence of Guinea worm disease has reduced drastically through cost effective intervention provided by The Cater Center, WHO, UNICEF with the disease targeted for eradication. Some African countries like Nigeria, Ghana, South Africa, and Kenya being the most recent, have eliminated the disease. Guinea worm is still present in Chad, Cameroon, Mali, Ethiopia where political instability, social inequalities and infection of dogs by the worm pose an increasing threat and obstacle to the elimination of the disease. Dracunculiasis represents a disease that can be eradicated without a drug or vaccine but with a cost-effective intervention that involves community efforts.

Keywords: Dracunculiasis; Eradication; Insecurities; Dogs; Guinea worm disease

INTRODUCTION

Dracunculiasis is a parasitic worm infection also known as Guinea Worm Disease (GWD). It is caused by a nematode called Dracunculiasis Medinensis. It belongs to a group of communicable diseases called Neglected Tropical Disease (NTD). Dracunculiasis is caused by drinking water contaminated with the vector copepods (water fleas). Although the disease is not fatal, the sores in the legs caused by the emerging worm can leave the individual incapacitated for weeks. This disability extends beyond the emergence of the worm thereby disrupting the individual's life [1-8].

LITERATURE REVIEW

30 years ago, GWD was prevalent predominantly in about 20 countries with 17 of these countries from Africa. However, there has been a drastic decline in the incidence of the disease from approximately 3.5 million cases to about 28 cases in 2018. Currently, the 2020 update revealed 16 human cases globally, a fall from 28 reported cases in 2019 with 1 in Chad, 9 in Ethiopia, 5 in Mali and 1 in Cameroon. In addition, 1,454 dogs were reported to be infected with the disease worldwide. Given these, 198 countries have succeeded in eliminating Guinea worm disease. 7 counties are yet to be certified free of GWD. The International Commission for the Certification of Dracunculiasis Eradication (ICCDE) is responsible for certifying a country free from GWD [9-21].

In endemic countries, the impact of GWD includes disabilities affecting the productivity and quality of life of young adults. In addition, due to its peak occurrences in the rainy and dry season, GWD affects the farmers resulting in decreased manpower which are in high demand for planting and harvesting. This leads to reduced food production, decreased revenue and poverty. Furthermore, children infected by the GWD are hindered from attending school because of the debilitating sores on their legs as most children usually walk a long distance to school. Hence, its negative impact on the

Correspondence to: Dr. Aja Kalu, Department of Care of the Elderly, Barking, Havering and Redbridge University Hospital, NHS Trust, Romford, Essex, UK, E-mail: kaluajajnr@gmail.com

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quality of education and literacy rates which are vital factors for community development and intervention.

Current intervention

Dracunculiasis was targeted for eradication and the feasibility was tangible because of the following reason: It had no known animal host except human; no drugs or vaccine need for treatment; the vector is restricted to stagnant water; the diagnosis is simple; the intervention was cost effective and simple; the disease has a limited geographic distribution. World Health Organization global plan instituted the following strategies for the eradication of Dracunculiasis by 2015 which were increasing case containment measures, active surveillance, provision of safe drinking water, water treatment with larvicide, provision of water filters, health education and promotion to influence behavioural change. However, eradication programs are more stringent due to the outcome being time bound and that the set objectives must be completely met to achieve a zero incidence of the disease [21-27].

The significant success of the elimination of Guinea worm disease in many countries globally was due to the combined effort of the World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF) and Carter Centre in implementing Guinea Worm Eradication Program (GWEP). The GWEP was an indicator for the success of other programs like International Drinking Water Supply and Sanitation Decades which aimed at providing safe water and sanitation. This encourages inter-programme collaboration. In addition, the execution of GWEP strategies was compatible with most primary health care activities, thereby fortifying the health sector (horizontally) in endemic countries.

Challenges

Despite the above interventions, Guinea worm Disease is still present in Chad, South Sudan, Angola, Mali and Ethiopia where insecurities and infection of dogs by the worm pose an increasing threat to the elimination of the disease. Insecurity such as war, civil unrest creates political instability and social inequalities which have hindered active surveillance, destroyed healthcare systems, frustrated donors'efforts, and caused the displacement of people leading to the persistence of the diseases. Also, Insecurity has caused difficulty in monitoring intervention and programme implementation [28-30].

In addition, the large number of infected dogs has provided a new host which is a changing epidemiology of GWD thereby averting elimination strategies and this has been implicated in the re-emergence of infection in Chad. Other challenges to GWD eradication include the lack of clean and safe water in remote villages, Poor environmental sanitation which propagates the transmission of the disease. Thus, Guinea worm disease persists and thrives because of insecurities and infections in dogs which creates a vicious cycle that has a detrimental socio-economic effect on the endemic communities.

Proposed intervention

An Integrated approach should be employed to tackle the obstacles to the eradication of GWD. The integrated approach entails combining the diagonal approach and balanced approach across upstream, midstream and downstream measures. In the diagonal approach, intensifying and consolidating the current interventions and strategies of the GWEP (vertical) should be encouraged and strengthening of the health care systems, water and sanitation sector and educational sector (horizontal).

The policymakers and stakeholders should meet at strategic levels to address the current challenges facing Guinea worm eradication. Also, the policies created should aim at maximizing the impact of the intervention to meet the set objectives of eradication and produce better outcomes. Furthermore, The Government should address the wider determinants of health such as poverty, insecurities, education, provision of clean water and environmental sanitation through good political will, good governance and proper policy implementation which will provide a suitable foundation for intervention to succeed.

Due to the changing epidemiology and variation in the mode of GWD transmission, changing the intervention indices like reward awareness, abate coverage, burying fish gut, safe water source and accessibility from the former will help combat the challenges opposing eradication. More research into the evolving epidemiology of Guinea worm, infection of dogs and ways of putting a halt should be carried out.

Nigeria eliminated GWD in 2013 by implementing the recommended strategies for surveillance and interventions in its national dracunculiasis eradication program.

CONCLUSION

Dracunculiasis represents a disease that can be eradicated to join smallpox without a drug or vaccine, but with cost-effective intervention that involves the government and community efforts in tackling the problems created by insecurities and infections in dogs.

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