THE AAS IMPACT

DELTAS Africa: African scientists influence the World Health Organization protocol to eliminate rabies

Afrique One-ASPIRE at a glance

The Developing Excellence, Leadership and Training in Science in Africa (DELTAS Africa), a programme of The African Academy of Sciences, supports Afrique One-ASPIRE, a pan African research consortium, which focuses on endemic zoonotic diseases. The consortiums Thematic Training Program aims to close the rabies knowledge gaps particularly in the understanding of epidemiological, social, political and cultural factors influencing the effectiveness of interventions for the prevention, control and elimination of rabies. Collaborating with 21 institutions from 15 African and European countries, its research focuses on ecosystem and population health by facilitating multidisciplinary, intersectoral, and bilingual collaborations as well as extending cultural and geographic boundaries.

Background

Dog mediated rabies is a fatal viral disease spread to humans through saliva of infected animals. 95% of the annual 59,000 human deaths reported globally are in Africa and Asia. Despite being a preventable disease, rabies is underreported and still neglected. As with rinderpest, it is known that control and elimination in Africa are feasible.

Rabies, once showing symptoms, is a non-treatable disease. However, it is a 100% preventable through mass dog vaccination. In low-and-middle income countries, the control of the disease is failing because of lack or limited success of interventions. In these countries, the access to post-exposure vaccines is limited by their availability, their cost and the type of regimen. Two main treatment protocols are currently adopted, the Zagreb and Essen. Both consist of 4-5 injectable doses in one vial for one person. The average cost of one vial of vaccine is about 26USD, which is costly for poor communities who are most affected by the disease.

59,000

People who die from rabies yearly

of human rabies cases occur in Africa and Asia

Description of study

Afrique One-ASPIRE scientists conducted a trial in 2016-2017 in the three African countries of Mali, Côte d'Ivoire and Chad involving 8,000 households per country, dog bite victims from selected health facilities and rabid dogs from veterinary services. The trial tested the feasibility and the cost-effectiveness of the intradermal (ID) protocol, a new treatment schedule, which requires rabies patients to take 2 shots of post-exposure prophylaxis (PEP).

The adoption of the new ID administration route allows dividing one vial of human rabies vaccine into doses for 5-10 persons, therefore dividing the cost by 80% and reducing the visits to health centres.

At the beginning of the study, about 50% of medical practitioners participating in the study adhered to the new ID protocol, this figure later rose to about 70%. The immunologic test demonstrated that the efficacy of the vaccine remains the same regardless of the administration route, either intramuscular (IM) or ID.

Impact

- Data generated by Afrique One-ASPIRE scientists in collaboration with a public-private partnership (GAVI, GSK, WHO) on rabies has contributed to the adoption of the new World Health Organisation protocol for PEP and point-of-care rabies diagnostics in dogs. Improving access to PEP against rabies and improving dog vaccination to eliminate dog-mediated rabies is highly cost-effective and could prevent nearly half-a-million deaths between 2020 and 2035. GAVI has decided to invest in PEP vaccination starting from 2021 in line with the Afrique One-ASPIRE approach.
- The results of the study showed that the ID route protocol, addresses some of the identified reasons for treatment challenges of rabies in humans. The ID protocol is a more cost-effective option for administering human PEP. The ID route allows dividing the content of just one vial to treat 5-10 persons, reducing PEP costs by 60-80%. In comparison, the current IM PEP treatment schedule requires patients to take four injections
- The ID protocol is preferred to the IM protocol by the population and is a reliable pathway to reduce the number of people not completing their PEP treatment.
- The ID protocol limits the loss of vaccines and promotes better management of the vaccine stock
- The ID protocol was approved in May 2018 by WHO in human PEP regimen.

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