OJPHI

ISDS 2016 Conference Abstracts

ISDS INTERNATIONAL SOCIETY FOR DISEASE SURVEILLANCE

Cryptosporidium in Wild Frogs (*Rana spp*) Consumed by humans in Kaduna State Nigeria

Grace S. Kia*, Blessing I. Ukuma, jerome okpanachi and Mathias B. Odoba

Veterinary Public Health and Preventive Medicine, Ahmadu Bello University Zaria, Zaria, Nigeria

Objective

To evaluate the occurrence of *Cryptosporidium* species in edible frogs (*Rana* spp) sold at the Hanwa frog market Zaria, Kaduna State, Nigeria.

Introduction

Since *Cryptosporidium* can be transmitted by ingestion of infected food animals and poorly treated water and by direct contact[1] it is possible for infection to occur through ingestion of under cooked frogs and through handling and processing of infected frogs. In Burkina Faso frogs caught are sold to market-women who treat the frogs by emptying their bowels and frying in oil before selling them, this is not always the case for the Nigerian frog markets where frogs are sometimes smoked or dried without necessarily been fried, before consumption[2]. This may pose a health risk for transmission of cryptosporidiosis from infected frogs.

Presence of *Cryptosporidium* oocysts in frogs may by implication reveal the *Cryptosporidium* status of water bodies from various sources where the frogs were caught. Water management programmes for treatment of *Cryptosporidium* is difficult as the oocyst is resistant to several disinfectants including chlorine[1]. The consumption of such treated water in urban areas and untreated water in most rural communities may expose a great proportion of Nigerians to cryptosporidiosis. Owing to the number of HIV/AIDS patients who commonly suffer from cryptosporidial enteritis and cough, the control of cryptosporidiosis in animals and man is of public health significance.

Methods

A cross-sectional study was conducted between February and April, 2016 using intestinal contents from wild captured *Rana* species of frogs (n=117), sourced from 8 different locations, from the frog central collection, sales and processing point at Hanwa in Zaria. The intestinal contents from the frogs were examined by staining flotation and sedimentation smears with modified Ziehl-Neelsen stains followed by microscopy and micrometry of the oocysts.

Results

Overall, 35.9% of frogs sampled from the Hanwa frog market were positive for *Cryptosporidium* oocysts. There were more *Cryptosporidium* oocysts detected by sedimentation test (28.2%) than flotation test (23.9%). Although there was no significant statistical association between sex of frogs and oocyst detection (χ^2 =0.5349, p>0.05); sex wise, female frogs (40%) and frogs within the weight range 170-219g were more infected with *Cryptosporidium* (66.7%). Oocysts size ranging between 6.10µm -7.00µm, had the highest frequency of 10 (23.8%). By size 28.2% of the oocysts detected suggest infection with *C. parvum* and *C. maleagridis*.

Conclusions

We present the first report of *Cryptosporidium* oocysts in wild edible frogs (*Rana* spp) sold at the Hanwa frog market Zaria, Kaduna State, Nigeria. Frog consumption is on the increase in Nigeria, but baseline information on associated zoonoses is rare. A cross-sectional study conducted between February and April, 2016 using intestinal contents from wild captured frogs (n=117), sourced from 8 different locations using the modified Ziehl-Neelsen stains and micrometry revealed 35.9% were positive for *Cryptosporidium* oocysts. Of the oocysts detected 28.2% suggest infection with *C. parvum* and *C. maleagridis,* this may constitute a health risk for humans.

Keywords

Cryptosporidium oocysts; Rana frogs; Zaria Nigeria; public health

Acknowledgments

We acknowledge the Department of Vet Public Health and Preventive Medicine, Ahmadu Bello University Zaria, for partial sponsorship of this work by GSN.Kia ABU2016/P18758.

References

1. Besser-Wiek, J.W, Forfang J, Hedberg C.W, Korlath J.A, Osterholm, M.T, Sterling C.R and Garcia L. Foodborne outbreak of diarrheal illness associated with Cryptosporidium parvum - Minnesota, 1995. Morbidity and Mortality Weekly Report, 1996, 45(36):783.
2. Mohneke, M. Unsustainable use of frogs in West Africa and resulting consequences for the ecosystem Tag der mündlichen Prüfung. 2011, 31.01.2011; page 22.

***Grace S. Kia**
E-mail: gracegracekia@yahoo.com