Meeting Report

EXPERT CONSULTATION TO ACCELERATE CONTROL OF FOODBORNE TREMATODE INFECTIONS, TAENIASIS AND CYSTICERCOSIS

17–19 May 2017
Seoul, Republic of Korea

World Health Organization
Western Pacific Region

WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC

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Convened by:

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NOTE

The views expressed in this report are those of the participants of the Expert Consultation to Accelerate Control of Foodborne Trematode Infections, Taeniasis and Cysticercosis and do not necessarily reflect the policies of the conveners.

This report has been prepared by the World Health Organization Regional Office for the Western Pacific for Member States in the Region and for those who participated in the Expert Consultation to Accelerate Control of Foodborne Trematode Infections, Taeniasis and Cysticercosis in Seoul, Republic of Korea from 17 to 19 May 2017.

CONTENTS

Keywords:

Foodborne diseases – prevention & control / Trematode infections – prevention & control / Taeniasis – prevention & control / Cysticercosis – prevention & control / Tropical diseases

ABBREVIATIONS

DALY	disability-adjusted life year
EITB	enzyme-linked immunoelectrotransfer blot assay
ELISA	enzyme-linked immunosorbent assay
FAO	Food and Agriculture Organization of the United Nations
FBT	foodborne trematode
GMP	Good Manufacturing Practice
JEMRA	Joint FAO/WHO Expert Meeting on Microbiological Risk Assessment
MDA	mass drug administration
NTD	neglected tropical disease
OIE	World Organisation for Animal Health
PCR	polymerase chain reaction
TB	tuberculosis
WHO	World Health Organization

SUMMARY

Foodborne trematode (FBT) infections, taeniasis and cysticercosis are noteworthy neglected tropical diseases. They are caused by trematodes (flatworms or “flukes”) or pork tapeworms that are acquired through ingestion of food contaminated with the larval stages, eggs or proglottids of the parasite. Transmission is linked to practices in producing, processing and preparing foods and livestock. These diseases are also zoonotic infections affecting domestic or wild animals. Strong intersectoral cooperation is accordingly required for control of their transmission. The morbidity burden is significant in the Western Pacific Region: liver flukes are classified as carcinogenic, long-term infections causing cholangiocarcinoma or bile duct cancer, and cysticercosis, particularly neurocysticercosis, is known to cause epilepsy and sometimes death.

The participants in the Expert Consultation to Accelerate Control of Foodborne Trematode Infections, Taeniasis and Cysticercosis acknowledged progress in epidemiological mapping of foodborne trematode infections, taeniasis and cysticercosis at country level in many affected countries of the Western Pacific Region. Countries that have sufficient information to accelerate control interventions and those that urgently need to complete risk mapping were respectively identified. Significant progress has also been made worldwide over the past decade in developing guidance and tools for the control and management of foodborne trematode infections, taeniasis and cysticercosis, both from public health and food safety standpoints.

The Consultation acknowledged that while preventive chemotherapy intervention has proven effective in reducing the prevalence of opisthorchiasis, clonorchiasis and taeniasis, multiple factors contribute to high reinfection rates immediately following preventive chemotherapy such as poor sanitation, poor food hygiene, the presence of animal reservoirs in close proximity to communities and cultural food habits. Therefore, preventive chemotherapy accompanied by community empowerment through the One Health approach, composed of effective risk communication, animal treatment, agricultural interventions, improved food safety, and water, sanitation and hygiene (WASH), was recommended anew as the core strategy to accelerate and sustain control of foodborne trematode infections, taeniasis and cysticercosis.

Regular monitoring and evaluation of interventions and associated severe adverse events for control of foodborne trematode infections, taeniasis and cysticercosis is essential. A procedure for systematic reporting of epidemiological and treatment data within countries, and from countries to WHO, and the standardization of diagnostic methods for foodborne trematode infections, taeniasis and cysticercosis both in humans and animals should be established with the support of WHO collaborating centres and other academic and research institutions.

WHO should also strengthen collaboration with other relevant international agencies, such as the Food and Agriculture Organization of the United Nations and World Organisation for Animal Health, in sharing information related to foodborne trematode infections, taeniasis and cysticercosis, and jointly supporting countries in building their capacities to intervene throughout the food value chain for effective control of foodborne parasitic diseases.

1. INTRODUCTION

1.1 Meeting organization

The Expert Consultation to Accelerate Control of Foodborne Trematode Infections, Taeniasis and Cysticercosis was held on 17–19 May 2017 at the JW Lee Center for Global Medicine in the Seoul National University College of Medicine in Seoul, Republic of Korea. It was attended by 13 experts and four representatives of the stakeholder organizations. The programme agenda is in Annex 1. The full list of participants is available in Annex 2.

1.2 Meeting objectives

The objectives of the Consultation were:

1) to review the current burden and endemicity of foodborne trematode (FBT) infections, taeniasis and cysticercosis in the Western Pacific Region, as well as country experiences and recent research on the control of these diseases;

2) to recommend strategic actions and research priorities, and estimate resource needs to accelerate control of such diseases in the Region; and

3) to identify and discuss integration opportunities with other disease control and surveillance activities that will contribute to acceleration of the control of FBT infections, taeniasis and cysticercosis in the Western Pacific Region.

2. PROCEEDINGS

2.1 Opening session

Dr Jong-Koo Lee , Director of the JW Lee Center for Global Medicine, Seoul National University, Republic of Korea, delivered the welcoming remarks. He said that the key need in elimination and control of communicable diseases was to fill three gaps: a knowledge gap, an implementation gap and an ambition gap. He also emphasized the importance of a comprehensive approach to combat foodborne and zoonotic parasitic diseases.

Dr Rabindra Abeyasinghe delivered the opening remarks on behalf of Dr Shin Young-soo, WHO Regional Director for the Western Pacific. The Regional Director recognized that FBT infections, taeniasis and cysticercosis remained a significant public health problem in the Western Pacific Region, given the severity of the burden caused by these diseases including cholangiocarcinoma or bile duct cancer due to opisthorchiasis and clonorchiasis, and seizure and epilepsy due to neurocysticercosis. Transmission was linked to practices of producing, processing and preparing foods and livestock. The diseases were also zoonotic infections affecting domestic or wild animals. In striving to effectively control them, strong multisectoral cooperation and political commitment were essential to improve food production, processing and hygiene practices, treat infected animals, and improve sanitation to prevent contamination of the environment and the infection of animal reservoirs.
In closing, Dr Shin thanked the participants for sharing their expertise and experience to guide the Region in the fight against neglected tropical diseases (NTDs).

2.2 Background of the Consultation

The International Task Force for Disease Eradication, convened six times between 1989 and 1992 at the Carter Center of Emory University, evaluated 94 infectious diseases to determine candidates for

global eradication and concluded that six were potentially eradicable. Taeniasis/cysticercosis was included in the six diseases for the following reasons: (i) human beings are the only definitive hosts of *T. solium*; (ii) effective tools for surveillance to identify foci of transmission of *T. solium* and for mass treatment of humans to help eliminate such foci exist; (iii) there are countries and areas where *T. solium* has disappeared even without targeted control measures; and (iv) it causes a substantial economic burden to the pork industry justifying a global response.[1] FBT infections were considered not eradicable because of the presence of the nonhuman reservoir and many asymptomatic cases. However, the Task Force found that reduction of prevalence is possible through measures such as the promotion of sanitary disposal of human faeces.

In 1993, a meeting of the WHO Study Group on the Control of Foodborne Trematode Infections was convened in Manila, Philippines. The meeting reviewed the epidemiological status of clonorchiasis, fascioliasis, opisthorchiasis and paragonimiasis; summarized scientific advances relevant to control of the diseases; and recommended an integrated control strategy requiring the close collaboration of the health, agriculture, food safety and education sectors. Since then, a series of expert consultations have been convened and guidance published on public health and food safety interventions applicable for the control of FBT infections, taeniasis and cysticercosis, including the guidelines for the surveillance, prevention and control of taeniasis/cysticercosis jointly published by the Food and Agriculture Organization of the United Nations (FAO), World Organisation for Animal Health (OIE) and WHO in 2003.

A WHO Expert Consultation to Accelerate Control of Foodborne Trematode Infections, Taeniasis and Cysticercosis was held on 12–16 October 2009, in Vientiane, Lao People's Democratic Republic, to review information on geographical distribution and discuss control options in endemic countries in the Western Pacific Region. The Consultation identified the need to complete risk mapping in countries and recommended preventive chemotherapy as the primary strategy for clonorchiasis, opisthorchiasis and fascioliasis. Since then, significant progress has been made on risk mapping, but progress in prevention and control activities is still slow.

The present Consultation was therefore held to assess the current knowledge and information gaps and to narrow down a specific and simplified set of interventions that countries could focus on in coming years in order to accelerate control of FBT infections, taeniasis and cysticercosis.

2.3 Global overview of control of FBT infections, taeniasis and cysticercosis

The WHO Western Pacific Region presents the second-largest burden of foodborne diseases and the highest mortality due to foodborne parasites in the world, according to the recent WHO estimates of the global burden of foodborne diseases released in 2015 (Fig. 1).[2] Of particular public health concern in the Region are FBT infections, including clonorchiasis, fascioliasis, opisthorchiasis and paragonimiasis, and taeniasis/cysticercosis (pork tapeworm), and these were the subjects of this Consultation.