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Effectiveness of SUT-OVCCA-Mobile application for risk group screening of a carcinogenic liver fluke among rural population in Thailand

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Liver fluke caused by *Opisthorchis viverrini* is an endemic in Southeast Asia particularly in Thailand, Lao People's Democratic Republic, Cambodia and central Vietnam. The infection is associated to cholangiocarcinoma; bile duct cancer. Active surveillance in rural communities with an appropriate low-cost screening tool is required to facilitate early detection. Previously, we developed verbal screening test and then created for smartphone. In addition, mini-parasep sf parasite faecal concentrator is a new technique that increased the sensitivity and specificity for helminthic infection. This study aimed to screen the risk group for liver fluke infection among participants from rural communities northeast areas of Thailand where has been reported the highly incident of cholangiocarcinoma, by using OVCCA mobile application (verbal screening test), and determine the liver fluke infection in the high risk group by using mini-parasep sf parasite faecal concentrator (mpfc). A cross-sectional survey was performed among 560 participants from Nakhon Ratchasima, Chaiyaphum, and Khon Kaen province, northeast Thailand during October 2016 and February 2017. All participants were self-screened test through OVCCA mobile application and then reported the result for themselves and data retrieved. The high risk group was asked for faecal collected and parasitic examined by using mpfc. The majorities of participants were female (58.3%), age group 41-50 years old (37.3%), primary school (61.0%), and agriculture (84.4%). The data demonstrated OVCCA application had a very good intra-class correlation coefficients =0.895 and could clearly distinguish the risk group of liver fluke infection. The item analysis was weighted and found that cyprinoid fish consumption had an important weight for liver fluke infection screened ($\beta=0.427$, $t=409.892$, $p=0001$), and partial correlation=0.967. Participants had scores with the low risk; however, the high risk was found 3.1%. In the high risk group found that the liver fluke infection rate was 2.8%, found frequently in male, primary school, and agriculture group. In conclusion, liver fluke is still a serious problem in community level of Thailand. OVCCA application is a valid and reliable method for assessing liver fluke risk among community populations therefore it may be useful for early detection in other epidemic areas of Thailand.

Biography

Natthawut Kaewpitoon completed his PhD from Khon Kaen University in Thailand and molecular biology practicum performed at Queensland Institute of Medical Research, Brisbane, Australia. He is the committee member of Parasitic Disease Research Center, Institute of Medicine, Suranaree University of Technology, Thailand. He has published more than 60 papers in reputed journals and has been serving as an Editorial Board Member of reputed Natthawut Kaewpitoon completed his PhD from Khon Kaen University in Thailand and molecular biology practicum performed at Queensland Institute of Medical Research, Brisbane, Australia. He is the committee member of Parasitic Disease Research Center, Institute of Medicine, Suranaree University of Technology, Thailand. He has published more than 60 papers in reputed journals and has been serving as an Editorial Board Member of reputed.

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