

ORIGINAL PAPER
ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

***Plasmodium knowlesi* malarial infection
in western travelers returning
from Southeast Asia
A summary of the clinical pattern**

OBJECTIVE *Knowlesi* malaria is a new, important and potentially lethal mosquito-borne disease in the tropical countries, caused by infection with *Plasmodium knowlesi*. Southeast Asia is the region with the highest prevalence of this new malarial infection. This paper describes the epidemiology and clinical manifestations of *knowlesi* malaria in western travelers returning from Southeast Asia. **METHOD** The clinical patterns of *knowlesi* malarial infection among travelers returning from Southeast Asia were reviewed and analyzed on the basis of the available hospital documents. **RESULTS** At least 6 case reports have been published of *knowlesi* malarial infections in travelers returning from Southeast Asia, of which none was lethal. The characteristic clinical manifestations were a sharp high fever and myalgia. **CONCLUSIONS** The clinical pattern of *knowlesi* malaria infection among western travelers returning from Southeast Asia is similar to that of the general population in the endemic area, but hemorrhagic complications have been less commonly reported. Physicians should be aware of the potentially severe complications.

Plasmodium knowlesi malaria is a new, important and potentially lethal mosquito-borne disease in the tropical countries. The region of Southeast Asia is an area with a high prevalence of this infection.¹⁻³ The mosquito is considered to be the primary *knowlesi* malaria vector and the monkey is an important reservoir host.¹⁻³ The fact that several vector borne diseases now constitute new problems in many countries, in association with the rapid growth of international traffic, poses a significant increased risk to the traveler.⁴ Examples of this problem are malaria⁵ and dengue⁶ which are being diagnosed increasingly in the western countries in travelers returning from endemic areas. This paper describes the epidemiology and clinical manifestations of *knowlesi* malarial infection in the non-endemic population of travelers returning from Southeast Asia.

MATERIAL AND METHOD

This study was designed as a descriptive retrospective study. A literature review was made of the papers concerning *knowlesi* malarial infection in western travelers returning

from Southeast Asia, using the Index Medicus and the Science Citation Index, with the key words "*knowlesi* malaria" and "travel". Six reports covering 6 cases of *knowlesi* malarial infections in western travelers returning from Southeast Asia were identified and included for further analysis.

Descriptive statistics were used in analyzing the patient characteristics with the SPSS 7.0 program for windows.

RESULTS

There have been at least 6 reports^{2,7-11} in the literature of 6 cases of *knowlesi* malarial infections in western travelers returning from Southeast Asia, of which none was lethal. All the documented cases were in immunocompetent males. The main clinical presentation was a sharp high fever of unknown origin. The onset of the illness was between 1 week and 3 weeks after returning from Southeast Asia. The visiting period in Southeast Asia was between 1 week and 6 months. In all the cases the diagnosis was established by molecular diagnostic techniques. Of the 6 cases, none presented complications on diagnosis. Standard antimalarial drug treatment (mefloquine) was successful.

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2012, 29(1):58-60

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Λοίμωξη από πλασμώδιο *knowlesi*
σε ταξιδιώτες δυτικής χώρας
που επέστρεψαν
από τη νοτιοανατολική Ασία:
Κλινικές εκδηλώσεις

Περίληψη στο τέλος του άρθρου

Key words

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DISCUSSION

Knowlesi malaria is the most important emerging mosquito-borne viral infectious disease. Currently, *knowlesi* malaria is endemic in Southeast Asia where the mosquito vector and its reservoir host, the monkey, are abundant.^{1–3} Although *knowlesi* malarial infection among western travelers returning from endemic area has been reported sporadically for years, there has been no systematic description of the clinical pattern of *knowlesi* malarial infection among travelers. The main aim of this retrospective study was to investigate the clinical pattern of *knowlesi* malarial infection in the non-endemic population of western travelers returning from Southeast Asia.

According to this review, the clinical manifestations of *knowlesi* malarial infection among the studied population are similar to those of the population in the endemic areas. A sharp high fever is the first presentation of the infection. Many of the complications of malaria are immune-

related complications, which cannot occur at the initial infection.¹² Thus, it is not surprising that the incidence of complications of the new malaria among travelers from non endemic countries is low. All the documented cases were in males who had a history of visiting jungle areas endemic for *knowlesi* malaria. The geographical extent of this new infection is still limited; it circulates among the monkeys living in the forests and accidental infection is possible if the human beings come into close contact with those monkeys. It is a pure zoonosis that needs contact with the infective reservoir host animals.¹³ According to this review, the clinical pattern of *knowlesi* malarial infection among western travelers returning from Southeast Asia is similar to that of the general population in the endemic area. This pattern cannot be very useful for differential diagnosis from other mosquito-borne diseases, especially dengue, that can also be harbored in the western traveler returning from Southeast Asia.⁶

ΠΕΡΙΛΗΨΗ

Λοίμωξη από πλασμώδιο *knowlesi* σε ταξιδιώτες δυτικής χώρας που επέστρεψαν από τη νοτιοανατολική Ασία: Κλινικές εκδηλώσεις

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ΣΚΟΠΟΣ Η ελονοσία από πλασμώδιο *knowlesi* είναι μια νέα σημαντική, δυνητικά θανατηφόρα νόσος στις τροπικές χώρες. Η περιοχή της νοτιοανατολικής (ΝΑ) Ασίας εμφανίζει τη μεγαλύτερη συχνότητα σε αυτού του τύπου την ελονοσία. Περιγράφεται η επιδημιολογία και οι κλινικές εκδηλώσεις του εν λόγω τύπου ελονοσίας σε ταξιδιώτες που επέστρεψαν από τη ΝΑ Ασία. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Ανασκοπήθηκαν συστηματικά και αναλύθηκαν οι κλινικές εκδηλώσεις των ατόμων που παρουσίασαν ελονοσία από πλασμώδιο με βάση τα διαθέσιμα νοσοκομειακά στοιχεία. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Υπήρξαν τουλάχιστον 6 περιπτώσεις λοίμωξης από πλασμώδιο *knowlesi* σε ταξιδιώτες από τη ΝΑ Ασία, από τις οποίες μία ήταν θανατηφόρα. Οι χαρακτηριστικές κλινικές εκδηλώσεις περιελάμβαναν αιφνίδια έναρξη υψηλού πυρετού άγνωστης αιτιολογίας και μυαλγίες. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Οι κλινικές εκδηλώσεις ήταν παρόμοιες με εκείνες του γενικού πληθυσμού στις ενδημικές περιοχές, αν και οι αιμορραγικές επιπλοκές ήταν σπανιότερες.

Λέξεις ευρητηρίου: Ελονοσία, Νοτιοανατολική Ασία, Πλασμώδιο *knowlesi*, Ταξιδιώτες

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