Albendazole in the treatment of uncomplicated strongyloidiasis by using the agar plate method

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บทคัดย่อ
การตรวจวิเคราะห์เชื้อสติงโอยิดส์ Strongyloides stercoralis จากดูดซับของผู้ป่วยได้ใช้ Agar Plate Method เป็นวิธีที่มีขั้นตอนดังนี้ ผู้ป่วยรับยา Albendazole ที่ช่องสีเหลือง 400 มิลลิกรัม ทุกวัน 3 วัน จนกว่าจะต้องการ จนกว่าจะทราบว่าเป็นโรค S. stercoralis 38 ราย ดื้อต่อ Albendazole ที่ช่องสีเหลือง 74.51% ร่างกายหลังรักษาเรียบร้อยแล้ว ส่ง Albendazole ไปในช่องสีเหลือง 3 วัน จนกว่าจะต้องการผล 3 วัน จนกว่าจะทราบว่าเป็นโรค S. stercoralis 38 ราย ดื้อต่อ Albendazole ที่ช่องสีเหลือง 74.51% ร่างกายหลังรักษาเรียบร้อยแล้ว ส่ง Albendazole ไปในช่องสีเหลือง 3 วัน จนกว่าจะทราบว่าเป็นโรค S. stercoralis 38 ราย ดื้อต่อ Albendazole ที่ช่องสีเหลือง 74.51% ร่างกายหลังรักษาเรียบร้อยแล้ว ส่ง Albendazole ไปในช่องสีเหลือง 3 วัน จนกว่าจะทราบว่าเป็นโรค S. stercoralis 38 ราย ดื้อต่อ Albendazole ที่ช่องสีเหลือง 74.51% ร่างกายหลังรักษาเรียบร้อยแล้ว ส่ง Albendazole ไปในช่องสีเหลือง 3 วัน จนกว่าจะทราบว่าเป็นโรค S. stercoralis 38 ราย ดื้อต่อ Albendazole ที่ช่องสีเหลือง 74.51% ร่างกายหลังรักษาเรียบร้อยแล้ว ส่ง Albendazole ไปในช่องสีเหลือง 3 วัน จนกว่าจะทราบว่าเป็นโรค S. stercoralis 38 ราย ดื้อต่อ Albenda
Abstract

The agar plate method is a new and highly sensitive technique for diagnosis strongyloidiasis. We detected strongyloidiasis from 331 villagers in Kron Kaen province by using this technique. There were 82 cases (24.77%) positive for Strongyloides stercoralis. They were administered albendazole 400 mg orally once a day for 3 consecutive days. Only 51 cases submitted stools for re-examination two weeks after treatment. There were 38 cases cured (74.51%). This study showed that strongyloidiasis is still a high cause of infection in Kron Kaen and the dosage of 400 mg orally once a day for 3 consecutive days of albendazole showed effective treatment.

Introduction

Strongyloides stercoralis is still one of the most prevalent parasitic nematodes in the tropics and subtropics. The parasite produces a chronic but usually asymptomatic infection in humans. However, the infection can be activated to produce hyperinfection syndrome in patients who have been under various immunosuppressed conditions especially by the administration of steroids. The benzimidazole compound, thiabendazole, has been the prime agent for the therapy of strongyloidiasis since its introduction in 1963. Nevertheless, this drug has significant toxicity and is not always effective in either normal or immunosuppressed patients with strongyloidiasis. Consequently, many new drugs have been introduced and albendazole is one of them. It is a benzimidazole derivative 5-(propylthio)-2-carboxamidothiazole which has been shown to be an effective treatment for strongyloidiasis. There has been an attempt to use albendazole in treatment of uncomplicated strongyloidiasis at the dosage of 200 mg twice a day for 3 consecutive days but the regimen gave 400 mg once a day for 3 consecutive days has not been performed.

The agar plate method is a new technique with a high detection rate for human strongyloidiasis and it was proven to be more sensitive than other conventional techniques.

The objective of the present study was the assessment of the efficacy of albendazole at the dosage of 400 mg once a day for 3 consecutive days in the treatment of uncomplicated strongyloidiasis with pre and post treatment diagnosed by using the agar plate method.

Materials and methods

Study area

The Nong Yapieng and Bueng Sewang villages, located 120 km west and 20 km east of Kron Kaen city respectively, were studied during January to May 1995.

Patients

Nearly all the people in two villages underwent stool examinations. All specimens were examined by using the agar plate method. Only adults who were diagnosed strongyloidiasis and did not have underlying diseases were enrolled in the study. They were administered albendazole (Zentel) 400 mg orally once a day for 3 consecutive days. Two weeks after treatment the stools were collected and re-examined for post treatment. The absence of S. stercoralis larvae after treatment was taken to indicate a cure rate which is expressed as a percentage.

The Agar Plate Method

Briefly, the agar plate method was automated and a small amount of the media (10 ml or less) was then distributed to each sterilized dish (9 cm in diameter). About 4 grams stool sample was placed at the center of the plate and incubated at room temperature (26-33°C) for 2-5 days. The process of assessment was: all plates were screened under a dissecting microscope (X40),
Positive signs such as an actual worm, sine-curve like furrow left by crawling larvae and characteristi-
cally aligned bacterial colonies were noted. Ten per-
cent formalin solution was poured onto each plate
until the agar surface was soaked. The formalin was
transferred into a test tube and the sediment was
examined by chopping on a glass slide and observed
under high magnification (X400) to identify the worms.

Result

Three hundred and thirty-one villagers were
enrolled in this study. There were 82 cases positive for
S. stercoralis, thus the overall the prevalence rate
of S. stercoralis infection in two villages was 24.77%.
Among the infected individuals, the ratio of male to
female was 1.6:1.

We excluded 10 children from 82 cases.
Only 51 cases submitted stools after administration
of the drug. There were 38 cases negative for S.
stercoralis, so the cure rate was 74.51%. None of the
51 cases had a significant side effect of the drug.

Discussion

The prevalence rate of S. stercoralis infec-
tion in this study in two villages in Khon Kaen was
considerable (24.77%) when diagnosed by using the
agar plate method for stool examination. It was higher
than the last study of Jongkuakangti et al.16 which
found only 0.17% (22 out of 12,705) in northeastern
The discrepancy in prevalence rate clearly suggested
that the agar plate method is more efficient for
detection of S. stercoralis in human stools.

The cure rate of albendazole at the dosage
of 400 mg orally once a day for 3 consecutive days
in this study was 74.51%. This result was similar to
the study of Punghai et al.17 at the dosage of 400 mg
in two divided doses daily for 3 consecutive days
when their result was 73% by using the simple ether
and the formalin-ether concentration method of
Richie. All cases in this study did not have an
underlying disease and they did not have significant
side effects of the drug. Therefore, we may use
albendazole at the dosage of 400 mg orally once a
day for 3 consecutive days in the treatment of
uncomplicated strongyloidiasis.

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