Abstract of Dissertation submitted by Khanjada Shahnewaj Bin Mannan

Prevalence and associated factors of asymptomatic leishmaniasis:
a systematic review and meta-analysis

不顕性リーシュマニア症の罹患率と危険因子:
システマティックレビューとメタアナリシス

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Introduction

Asymptomatic leishmaniasis plays an important role in maintaining the transmission of *Leishmania spp.* within endemic communities. Therefore, the trials to eliminate leishmaniasis are daunting if we cannot manage asymptomatic leishmaniasis well. To clarify the global prevalence and factors associated with the asymptomatic *Leishmania* infection, we assessed the prevalence of asymptomatic leishmaniasis by a systematic review followed by meta-analyses. In addition, factors associated with the asymptomatic leishmaniasis versus symptomatic one were also analyzed.

Materials and Methods

We performed an electronic search through the nine popular search engines and screened the articles based on the including and excluding criteria. We included all of the original articles alluding to the human asymptomatic leishmaniasis that was confirmed by at least one laboratory diagnosis method regardless of age, sex, race, and ethnicity of the patients, study design, publication date or languages. After extracting data they were subjected to meta-analysis by Comprehensive Meta-analysis software.

Results

In total, 111 original articles were chosen for the data extraction. Based on our meta-analyses of the original articles reporting asymptomatic leishmaniasis mostly in endemic areas, the prevalence of asymptomatic leishmaniasis was 11.2% [95% confidence interval (CI) 8.6%-14.4%] in general population, 36.7% [95% CI 27.6%-46.8%] in inhabitants living in the same or neighboring household to the symptomatic patients, and 11.8% [95% CI 7.1%-19%] in HIV infected patients. Among individuals with leishmaniasis, 70.4% [95% CI 61.3%-78.1%] were asymptomatic and males were more susceptible to develop symptoms, with OR=1.88, 95% CI 1.19-2.99, P=0.007. Meta-regression analysis also showed no significant change in the global prevalence of asymptomatic leishmaniasis during the last 40 years. However, asymptomatic leishmaniasis caused by *L. infantum* is increasing in the New World.

Discussion

We have analyzed the data extracted from the published papers. As, very few studies have been conducted in the non-endemic areas, our pooled prevalence reflect the situation of the endemic areas only. Increasing trends of prevalence of asymptomatic leishmaniasis in the New World can be explained by the diversity of *Leishmania* species and vectors in the New World. Our research mentioned several factors associated with asymptomatic infection. However, the data are inadequate to conclude the factors determining the fate of infection. Therefore, Further research is necessary to fully clarify the factors determining the fate of infection.

Notes: Summarize your dissertation with 2 pages of A4 (using 12 point, Times New Roman font, single space. Total number of words should not exceed 1000)