

主論文の要旨

**Antibiotic prescription for under-fives with common
cold or upper respiratory tract infection
in Savannakhet Province, Lao PDR**

ラオスのサバンナケット県における感冒あるいは上気道感染を持つ
5歳未満の小児に対する抗菌薬の処方

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【Introduction】

Mortality from infectious diseases is a major health issue, especially among children. Upper respiratory tract infections (URTIs) are commonly observed among children under 5 years of age (U5) for whom antibiotics have been frequently prescribed. The irrational use of antibiotics has been identified as a major problem in healthcare, and it can lead to antimicrobial resistance, treatment failure and increased healthcare costs. Although many studies worldwide have focused on the irrational use of drugs, reports on prescription practice in Lao PDR remained limited. This study aimed to examine the patterns of antibiotic prescription for under-fives with common cold or URTI at pediatric outpatient divisions (OPD).

【Materials and methods】

Healthcare providers were selected through convenient sampling among medical staff at pediatric OPDs providing healthcare for U5 at the provincial hospital (PH) and four district hospitals (DHs) for interview. U5 outpatients diagnosed with common cold or URTI were sampled from the list of outpatients who visited the hospitals during the first week of each month in 2016.

Categorical data were examined using a chi-square test. The 95% confidence interval (CI) of the percentage was calculated using the binomial distribution. An unconditional logistic model was applied to estimate odds ratios (ORs) and their 95% confidence interval.

【Results】

1. Usage of the guidelines

In total, 54 healthcare providers (20 males and 34 females) at five health facilities were interviewed. These individuals were the staff involved in medical check-ups at outpatient wards; 40.7% medical doctors, 7.4% pediatricians, 20.4% general practitioner, and 31.5% primary healthcare staff (Table 1).

Most providers had seen the standard treatment guideline (STG) for children 98.1%, and applied it for the prescription 96.3%. Further, 87.0% had heard about drug and therapeutic committee (DTC). Among the 54 healthcare providers, 72.2% had seen the essential drug list (EDL), 92.6% had heard about adverse drug reactions (ADR), and 90.7% had heard about antimicrobial resistance. Moreover, 44.4% had heard about the Antibiotic Awareness Week (AAW). Approximately seven-eighths of them had been trained in medical practice in the last two years 85.2%, but less than half had received rational use of drug (RUD) training 46.3%. The percentage was significantly higher among males 65.0% than among females 35.3% (Table 2).

In all, 5.6% stated that they performed blood tests for every outpatient. Antibiotics were prescribed by relying on symptoms in 98.1% of cases. Although 92.6% of providers reported having confidence in the prescription, 72.2% had concerns about the quality of antibiotics, 85.2% had concerns about self-medication of antibiotics at the next occurrence of similar symptoms, and

90.7% had concerns about the adverse effects of antibiotics and antimicrobial resistance (Table 3). While almost all healthcare providers believed in treatment guidelines 98.1%, 61.1% strongly agreed with the effectiveness of the regulation (Table 4).

2. Antibiotic prescription based on medical records

Information on antibiotic prescription was collected for 576 children (311 boys and 265 girls) who were diagnosed with common cold or URTI in 2016 at the OPD of Savannakhet PH (154 patients) and four DHs (422 patients) as shown in Table 5. Further, 39.4% of the patients were not covered by health insurance. Approximately 70% of the 349 insured patients were covered by community-based health insurance. Moreover, 31.2% and 27.5% were diagnosed with common cold at the PH and the DHs, respectively.

On average 2.4 drug items were prescribed for outpatients at the PH, and 2.8 drug items were prescribed for outpatients at the DHs. At the PH, essential drugs were prescribed for 83.4% of U5 patients, and 77.6% were prescribed drugs using a generic name. Antibiotics were prescribed for 68.8% patients. First-line antibiotics were prescribed for 97.2% of patients. At the DHs, essential drugs were prescribed for 91.5% and 81.7% were generic drugs. Antibiotics were prescribed for 70.9% patients. First-line antibiotics were prescribed for 97.7% of the U5. Among the first-line antibiotics, 87.7% and 79.3% at the PH and DHs, respectively, were recommended by WHO Model List of Essential Medicines for Children the 6th List. The correct dose based on the National STG was administered to 52.8% at the PH and 24.4% at the DHs, and the appropriate duration was prescribed for 2.2% of U5 (Table 6).

Antibiotics were prescribed for 8 out of 164 patients with common cold, 341 out of 355 patients with pharyngitis, and 56 out of 58 patients with other URTI. After adjustment, factors other than diagnosis were not significantly associated with antibiotic prescription (Table 7).

【Discussion】

This study demonstrated a high usage of the National STG (77.8%), especially for children (96.3%). The guideline was designed to be convenient for healthcare providers. Most healthcare providers had heard about DTC (87.0%), but only 22.2% were DTC members. Although the EDL had been distributed among all levels of health facilities, the current study found that 72.2% of the interviewees confirmed having seen this list, which was meant to be used as a reference for the procurement and prescription. Most interviewees stated that they had heard about ADR (92.6%) and antimicrobial resistance (90.7%). There was a significantly higher proportion of healthcare providers with experience in RUD training among males (65.0%) than among females (35.3%). Since RUD trainings were usually held at a provincial level, far from the residency for most interviewees, women might have hesitated to participate.

Almost all interviewees (98.1%) stated that compliance with the guidelines would contribute to more appropriate antibiotic prescriptions. In addition, 61.1% of them strongly agreed that

regulation is effective for RUD. Policy makers should consider developing antibiotic prescription regulations.

Several factors may influence antibiotic prescription. Although data on this was not available in this study, requests from family members could be a strong contributor. Accurate diagnosis of viral or bacterial infection is also important for appropriate antibiotic use, but reliable diagnostic techniques are not widely available in Lao PDR.

On average, 2.4 drug items were prescribed at the PH and 2.8 drug items were prescribed at the DHs. Although the average was slightly higher than the WHO reference value (2 items per visit), it was similar to values found in studies of the WHO African region. This study found that drugs on the EDL were frequently used (83.4%). The use of generic drugs was 80.7%, which is higher than the rate reported in a 2012 survey demonstrating that the majority of doctors (55.2%) prescribed generic antibiotics. It was also found that 97.2% of antibiotic prescriptions at the PH and 97.7% at the DHs were first-line antibiotics. The STG recommendation on first-line antibiotics was implemented in those hospitals. The present study found inappropriate doses and periods of antibiotic prescription, and the right doses were prescribed significantly more often at the PH (52.8%) than at the DHs (24.4%). Thus, more attention is needed with respect to the prescription of appropriate antibiotic doses and prescription periods.

【Conclusion】

This study demonstrated the patterns of antibiotic prescription for U5 with common cold or URTI among healthcare providers from two different levels of facilities. Although an appropriate number of generic first-line antibiotics in the essential drug list was prescribed, the dosage and duration of antibiotic use were not appropriate. In order to further improve antibiotic prescription practices, regulation by the government is necessary; this could also decrease antimicrobial resistance and improve treatment outcomes.