



Codeine Use in Children with Common Cold in Taiwan:

Data from National Health Insurance Research Database (NHIRD) & National Adverse Drug Reaction (ADR) Reporting System

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BACKGROUND

- In many developed countries, use of codeine for cough and common cold in children is restricted due to potential opioid toxicity.

patients received codeine for respiratory disorders. Two cases were identified as patients aged under 18, but neither ADR reported was serious (1 dyspnea and 1 skin rash).

OBJECTIVE

- To examine the prescription pattern of codeine-containing products and associated codeine toxicity in children with common cold in Taiwan.

Table 1. Children prescribed codeine for ARI in each age group

Age Years	No. of Children Diagnosed with ARI per million children	No. of Children Prescribed Codeine per million children (%*)
0-1	13,499	145 (1.1)
2-5	33,583	4,858 (14.5)
6-12	65,708	8,408 (12.8)
13-18	51,880	4,244 (8.2)
Total	164,670	17,655 (10.7)

* No. of children prescribed codeine / No. of children diagnosed with ARI x 100%

METHODS

- From the Taiwan NHIRD (one million beneficiaries sampled, year 2010), outpatient codeine prescriptions were retrieved to examine the prescription pattern of codeine use for children with common cold.

Table 2. Codeine prescriptions for children with ARI in each level of medical institutions

Level of medical institution	No. of ARI Diagnoses per million children	No. of Codeine Prescriptions per million children (%*)
Medical center	14,895	39 (0.3)
Regional hospital	34,956	168 (0.5)
Local hospital	30,810	737 (2.4)
Clinic	1,118,291	40,157 (3.6)
Total	1,198,952	41,101 (3.4)

* No. of codeine prescriptions / No. of ARI diagnoses x 100%

- Children:** defined as patients aged ≤ 18 .
- Common cold:** defined as a primary diagnosis of acute respiratory infection (ARI).
- From the Taiwan National ADR Reporting System Database, all codeine-associated ADR reports were retrieved. Cases with patients aged ≤ 18 were selected and reviewed to analyze the characteristics of children who received codeine and experienced an event (year 2003-2015).

RESULTS

- In 2010, 164,670 per million children were diagnosed with the common cold, and 10.7% received codeine prescriptions. It is estimated that codeine has been annually prescribed for over 400,000 children with common cold nationwide. (**Table 1**)

- Children with common cold aged 2-5 (14.5%) had the largest proportion of receiving codeine prescriptions, followed by children aged 6-12 (12.8%). (**Table 1**)
- 3.6 %, 2.4 %, 0.5%, and 0.3 % of codeine prescriptions were used for ARI in clinics, local hospitals, regional hospitals, and medical centers respectively. (**Table 2**)
- Of the 216 codeine-associated ADR reports, 38 cases of

CONCLUSIONS

- A large number of children with common cold in Taiwan are exposed to codeine.
- In Taiwan, codeine is prescribed for the common cold mostly in clinics, while ADRs are being reported predominantly by medical centers and hospitals. Codeine-induced ADRs in children with common cold in Taiwan may have been underestimated.