

Original

## Health Problems Related to Drug Compounding of Pharmacists in Dispensing Pharmacies

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### Abstract

The objective of this study was to clarify the characteristic health problems of pharmacists, which they consider to be related to drug compounding. This study was a cross-sectional survey. We sent self-administered questionnaires concerned with 1) symptoms of health problems which pharmacists believed to be related to drug compounding, 2) compounding processes and drugs which they believed to be related to those health problems, 3) compounding processes and working environment, and 4) self-rated life satisfaction to all managing pharmacists of dispensing pharmacies. Of 899 mailed questionnaires, 391 (43.5%) were completed and returned. Health problems which pharmacists believed to be related to drug compounding were reported from 60.3% of males and 71.3% of females. Most of these problems were allergic or irritation symptoms of the eyes, nose, oral cavity and throat. These symptoms related to tablet crushing, opening capsules and pharmacists' past history of allergies ( $p < 0.05$ ). General fatigue was related to low satisfaction with work ( $p < 0.01$ ). Personal protections to reduce exposure to drug dust should be strengthened and the factors of these health problems should be assessed by additional surveys. The recognition of this issue by prescribing physicians and their cooperation are also important.

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### —Key words—

Subjective symptom, Occupational exposure, Drug compounding

### Introduction

The number of dispensing pharmacies in Japan has increased as a result of a government policy that promotes the separation of drug dispensing and prescribing duties<sup>1)</sup>. The number of dispensed drugs per patient is increasing due to an increasingly older population whose consultation rate for medical care is high and because the number of prescribed medicines increases with age<sup>2)</sup>. One-dose packaging apportionment of powders, granules, tablets, and capsules are performed in order to improve medication compliance and to prevent incorrect drug ingestion<sup>3)</sup>. Alteration of dosage forms, such as crushing tablets and opening capsules, has been adopted for small or various dose prescriptions and for patients with swallowing difficulties<sup>4)5)</sup>. In a previous Japanese report, the frequency of dosage form alteration by clinical department was higher in pediatrics, psychiatry, and internal medicine<sup>4)</sup> in descending order. From these situations, many pharmacists, even in small-scale dispensing pharmacies, may be exposed to various drugs.

Health problems of pharmacists related to occupational exposure to drugs have been reported previously. Concerns regarding allergic diseases have been raised as early as the 1970s and more recently, especially among hospital pharmacists<sup>6)~11)</sup>. Furthermore, relationships of occupational exposure to antineoplastic drugs with acute adverse effects<sup>12)13)</sup>, infertility<sup>14)</sup>, miscarriages, and stillbirths<sup>15)</sup> were reported. As many antineoplastic agents have a potential to cause mutagenicity, teratogenicity, or carcinogenicity, prevention of occupational exposure to such drugs is needed<sup>16)~18)</sup>. Although the preparation of infused antineoplastic drugs may be restricted to hospital pharmacies, health problems resulting from antineoplastic drugs for internal use are also probable