

HIGH PREVALENCE OF POLLINOSIS SYMPTOMS AMONG THE FARMERS CULTIVATING JAPANESE PEARS

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In a district of Japanese pear cultivators, a questionnaire survey and an IgE antibody survey were conducted on the pollinosis. A high prevalence of 36.3 % of the farmers complained of pollinosis symptoms. By the IgE antibody survey, the symptoms were found to be related to the airborne pollens in the orchard.

In several agricultural environments such as the fruit cultivation and greenhouse breeding occupational pollinosis has been reported (1-5). However, the details of the pollinosis are not clear yet. The main purpose of this study is the surveying of symptoms of pollinosis among Japanese pear farmers and conducting IgE antibody survey to the airborne orchard pollens. Japanese pears are one of the most popular summer fruits and the orchards are widely distributed in Japan.

MATERIALS AND METHODS

To investigate the relationships between the cultivation and pollinosis, a questionnaire survey was conducted among 200 farmers of Japanese pears in Toyama City, Japan and the IgE antibody was examined among 16 symptomatic and non-symptomatic farmers, in 2001 (6-7). The questionnaire was answered from 198 pear farmers. Informed consent was taken before the examination.

RESULTS

The reported percentage of pollinosis symptoms is shown in Table I. A high prevalence of 36.3 % of the farmers complained of seasonal allergic symptoms during the artificial pollination season from April to May. The pollinosis symptoms by the generation and the working years are figured in Fig. 1 and Fig. 2, respectively. The pollinosis symptoms are most common among 50-60 year age group of farmers who worked for 20 – 30 years. Similar symptoms were widely complained about among 40 – 70 year age groups, who worked for 20 – 50 years.

The detailed symptoms of the 72 pollinosis and similar-symptom farmers are indicated in Table II. About 60 percent of the 72 pollinosis farmers correlated their symptoms to their orchard works. From April to May, the pollinosis farmers were complaining about the symptoms. During the pollen season, most of the farmers are exposed to allergenic pollens by conducting artificial pollination and mowing the grasses under the trees.

By the IgE antibody examination, 7 persons among 9 pollinosis farmers were found positive to the orchard

Table I. *The reported percentage of pollinosis symptoms.*

Symptoms	Number	Percentage
pollinosis symptoms	48	24.2
similar allergic symptoms*	24	12.1
symptoms subtotal	72	36.3
symptoms free	126	63.7
Total	198	100

* Unreported as pollinosis, however complaining of similar allergic symptoms about the eyes and nose.

pollens, including pear pollens. The farmers showed strong positive by the IgE antibody examination to the annual bluegrass, the main undergrowth. Even the farmers who did not complain of any symptoms, showed positive IgE antibodies to the Bluegrass pollens. Among these 16 farmers, there were not any clear relationships between their working years and the IgE scores.

DISCUSSION

The results of this survey demonstrated that the pollinosis symptoms showed a high prevalence of 36.8 % among the farmers who cultivate Japanese pears. The symptoms occurred seasonally and high IgE antibodies were detected among some farmers as shown by the questionnaire survey and the IgE scores. Some farmers showed allergic symptoms which have a close relationship to the number of years of cultivation and the exposure to airborne pollens of the orchard environment (2-3). To prevent the airborne pollen exposure, controlling the undergrowth of the orchard has become increasingly more important. Wearing mask, which defend pollen exposure, was 55.5% and 18.3% among the symptomatic farmers and the non-allergic farmers, respectively. The percentages were not so high for the prevention of pollen allergy. In conclusion, the wearing masks, the undergrowth maintenance of the orchard and the improvement of labor

Key words: pollen allergy, orchard, Japanese pear, questionnaire survey, IgE

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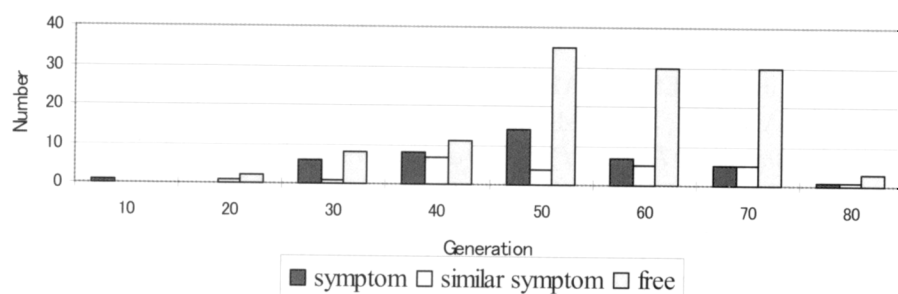


Fig. 1. Symptom by generation

Fig. 2. Symptom by working years

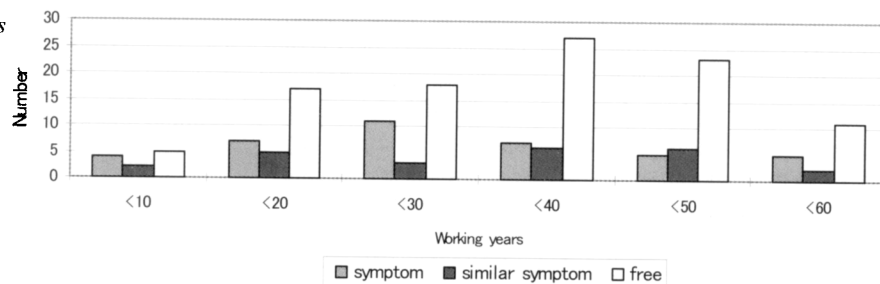


Table II. The reported percentage of pollinosis symptoms.

Ranking	Symptoms	Percentage
1	Sniffles and runny noses on sneezing	58.3
2	Bloodshot eyes and tearing	55.6
3	High frequency of sneezing	47.2
4	High frequency of sniffing	44.4
5	Wheezing on breathing	26.3
6	Phlegm upon awakening	20.8
7	Phlegm during daytime and night	19.4
8	Coughing during daytime and night	18.1
9	Coughing upon awakening	15.2
10	Paroxysm of choking	6.9

Table III. Results of the pollen IgE antibody examination.

No.	Sex	Age	Working	Symptom	Cedar	Pear	B.grass1	B.grass2	Spore
1	m	74	52	Yes	0	1	1	2	1
2	m	73	51	Yes	0	1	1	3	0
3	f	33	4	Yes	0	1	1	2	0
4	m	72	10	Yes	0	1	1	0	0
5	f	64	40	Yes	2	0	0	0	1
6	f	65	47	Yes	1	0	0	0	1
7	f	55	36	Yes	0	1	1	3	2
8	f	20	25	Yes	0	0	0	0	0
9	m	80	57	Yes	0	0	0	3	0
10	m	48	31	No	0	0	0	0	NT
11	m	50	32	No	0	0	2	1	NT
12	m	56	35	No	0	0	1	0	NT
13	f	60	20>	No	0	0	1	2	NT
14	m	45	15>	No	0	0	0	0	NT
15	m	75	63	No	0	0	0	0	NT
16	m	54	20>	No	0	0	0	0	NT

Pollinosis antibody score: 0; Negative, 1; Doubt, 2; Positive, 3; Strong positive
 Working: Working Years, B.grass1: Bluegrass1, B.grass2: Bluegrass2, NT: Not Tested

conditions (8) are strongly recommended.

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