Department of Health
REPUBLIC OF CHINA

25 February 1991/Vol. 7/No. 2

Epidemiology Bulletin

– Contents –

Survey on the Garbage Landfill Site and Dermatoses in A Township

Upon the petition in 1990 of villagers of Village A that the number of dermatoses has increased since the establishment of a garbage landfill ground in the village, the local health bureau has requested FETP (Field Epidemiology Training Program, the National Institute of Preventive Medicine, the Department of Health) for assistance in an investigation.

Residents from Village A was surveyed to have symptoms of dermatoses. In addition, two villages have been selected as reference groups: Village B similar to Village A in socio-economic conditions and other characteristics but is far way from the garbage landfill ground, and Village C, of the same distance to the garbage landfill ground as Village A but shares a different source of water. Morbidity rates of dermatoses in these three villages have been compared. Five lin's (neighborhoods) from each village have been selected for study. Selected family members of lin's interviewed as to their back-ground characteristics, occupations, dermatosis of any kind, the spraying of insecticides, the frequency, and the distance between farm and the garbage landfill ground. Dermatosis patients are screened by public health nurses and are later examined by Chairman of the Dermatology Department of the Tri-Service General Hospital.

Persons who have developed symptoms of either eczemia or urticaria after the establishment of the garbage landfill ground in July 1988 are considered as patients in this survey.

A total of 3,475 persons has been interviewed (1,177 in Village A, 1,502 in Village B and 796 in Village C); 133 claims to have dermatoses. Eight-six of them have been examined and 25 met the criteria (11 in Village A, 6 in Village B and 8 in Village C). Morbidity rates are 0.9%, 0.7% and 0.5% respectively. Most of the 25 patients (52%) are in the 40-60 age group (see Table 1).

The sex ratio is 1:1, 40% of the 25 patients are in farming, and 8% work as laborers. Most of them (80%) use tap water, and only 20% have sprayed insecticides (see Table 1).

No statistically significant difference ($p=0.86$) is found in morbidity rates between Vil-

Table 1. Background Information of 25 Patients

Item		No. of patient	%
Age:	0-20	4	16
	20-40	3	12
	40-60	13	52
	60-80	5	20
Sex:	Male	13	52
	Female	12	48
Occupation:	Farming	10	40
	Labor	2	8
	Others	13	52
Duration of sickness:			
	≤6 months	6	24
	6-12 months	10	40
	12 months +	9	36
Source of water:			
	Tap water	20	80
	Underground water	2	8
	Others	3	12

Table 2. Morbidity Rates by Occuptation and Age by Village

	Village B	Village A	Village C
No. of patiet	6	11	8
Morbidity	0.7%	0.9%	0.5%
P value	0.86*		0.31**
95% C.I. of OR	1.24 (0.46<RR<3.3)		1.75 (0.71<RR<4.33)
Farmers	107	225	181
Non-farmers	689	952	149
P value	0.001*		0.0000**
95% C.I. of OR	1.15-1.76		2.74-3.96
Age: 0-20	267	421	587
20-40	286	391	531
40-60	157	212	259
60-80	86	153	124
X^2	4.32		17.43
P value	0.028*		0.0005*

α<0.05

* comparison between Village A and B **comparison between Village A and C

lages A and B (0.9% vs. 0.7%), nor in the morbidity rates between Villages A and C (p=0.31), though there are differences in farming population and age composition between Villages A and B and Villages A and C (see Table 2). When morbidity rates are compared by farming (farming or non-farming) and age (above 40 years and below 40 years), no statistically significant differences are found (see Table 3).

Table 3. Morbidity Rates by Occupation and Age

	Farming		Non-farming		≤40 years		>40 years	
	No. of patient	%	No. of patient	%	No. of patient	%	No. of patient	%
Village A	4	1.77	7	0.75	11	0.9	11	3
Villaeg B	1	0.93	5	0.73	6	0.7	4	1.7
P value	1		0.808		0.86		0.47	
95% C.I. of OR	0.2-45.63		0.29-3.75		0.29-3.75		0.52-6.78	
Village A	4	1.77	7	0.75	11	0.93	11	3
Village B	5	2.77	3	0.24	8	0.53	4	1.1
P value	0.52		0.11		0.31		0.11	
95% C.I. of OR	0.14-2.78		0.72-15		0.66-4.8		0.83-10.7	

Stepwise logistic regression is used to study the independent effects of occupation and age on morbidity of dermatoses between Villages. The result is Y=-6.1 + 0.7 (occupation) + 1.9 (age). It is found that villages have no effect on morbidity, whereas occupation and age seem to have greater effect on the morbidity of dermatoses.

Of those who own farms, the distance between farms and the garbage landfill ground shows no statistically significant difference (p=0.09). No significant differences are found bectween morbidity and insecticide spraying (p=0.11) and morbidity and water sources (p=0.73) either.

Findings of present survey show that the morbidity of dermatoses in Village A is not significantly higher than the other two villages. However, 47 of the 133 suspects have not been examined, and they may have some impact on the survey findings. On the other hand, the examination rates of the three villages (59%, 70% and 72% respectively) are not significantly different, the examination rates may not have any impact on the survey findings.

Editorial Notes: The present survey investigated patients who had developed allergic dermatisis such as eczema or urticaria through contacts with environmental stimulants but excluding skin diseases caused by fungi (such as ringworm, sweat macula, and skin diseases induced by insects or stasis of blood).

Literatures show that thousands of chemical and other substances such as chromium, nickel, formaldehyde, epoxy, lead, arsenic and pollen can induce dermatoses. Garbage landfill grounds may contain some of these chemical substances depending on the contents of garbages, they primarily discharge ozone and mathane. These two, however, are not major allergens of dermatoses.

The findings show relatively strong relations between age and dermatoses and occupation and dermatoses. This perhaps is due to the fact that elderly people have fewer sebaceous glands and therefore are more prone to develop chronic dermatitis. The fact that farmers on farms closer to the lanfill ground have not necessarily developed the disease shows that the relation between dermatosese and garbage landfill ground is questionable. That more farmers develop the disease than non-farmers is perhaps, for occupational reasons, that farmers tend to expose more to environmental stimulants (such as sunshine) and hence are more prone to develop allergic dermatoses.

Though no statistically significant differences in the morbidity rates of dermatoses are found between the three villages studied, the public should be further educated on environmental protection to protect their health.

Reported by : Taichung County Health Bureau, Houli Health Station of Taichung County, Bureau of Disease Control of the Department of Health, and FETP, National Institute of Preventive Medicine, Department of Health (prepared by C.C. Chuei and S.C. Lai of FETP).

References:

1. George Wladbott, M.D. Health Effects of Environmental Pollutants, St. Louis, 1978, the C.V. Mosby Company.
2. Shieh JS, Hwang JW, The Management of Solid Waste, Schou Sing Publishing Company; 1988.
3. Daniel D. Chiras. Solid Waste. In: Environmental Science: The Benjamin/Cummings Publishing Company, Inc. 1985; 539-541.
4. Raymond R. Suskind. Environment and the Skin. Med. Clin. North Am. 1990; 74.
5. Stephen B, Tucker, Marcus M. Key. Occuptational Skin Diseases. In William N. Rom. Environmental and Occupational Medicine. 1983. 301-311.
6. Bajaj, AK., Gupta, SC. Shoe Dermatitis. Contact Dermkatitis. 1988; 19:372-5.
7. Goh, CL Occupational Dermatoses - An Update. Ann. Aca. med., Singapore, 1988; 17: 557-62.
8. Morcia G. Tonnesen, Villiam L.Weston. Aging of Skin. In Robert W. Schrier: Clinical Internal Medicine in the Aged. 1982; 296-302.