Reply to the Letter by Lange et al.: Is Endotoxin an Environmental Cause of Parkinson's Disease?

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We would like to thank Dr. J.H. Lange and colleagues for their valuable comments on our study on possible risk factors for Parkinson's disease (PD). In our paper, contrary to the findings in Europe and the USA, we observed a higher prevalence of PD in women than men in Yamagata, an agricultural prefecture of Japan [1]. This female preponderance of PD was observed in people living in cities, where agricultural workers (farmers) are rare. For example, the ratio of men to women having PD is 1:1.7 in Yamagata City (population: 255,369), the seat of the prefectural government where farmers are rare. In the cities of Izumo (population: 80,639) [2] and Yonago (population: 132,315) [3], the female preponderance of PD is similar to that observed in Yamagata City. Therefore, it seems that a female preponderance of PD exists in both city dwellers and the rural Japanese population.

Japan has become highly industrialized and the number of agricultural workers has dramatically declined in the past 50 years. The consumption of well water was common 50 years ago but is now rare. Nevertheless, the prevalence of PD has markedly increased during this period of time. For example, in Kyoto, the age- and sex-adjusted prevalence of PD was 34.4/100,000 in 1978 and increased to 112.7/

100,000 in 2001 [4]. This increase may be the result of a better prognosis, resulting in an increased prevalence of PD in the Japanese population. The above changes of the industrial structure, the social environment and the PD prevalence in Japan do not support the hypotheses that belonging to the rural population, exposure to pesticides and/or herbicides, and consumption of well water are risk factors for PD in Japan.

However, as Lange and colleagues point out, it is necessary to conduct extensive ecological investigations of PD which include data on smoking rates, tea/coffee/alcohol consumption, exposure to environmental agents (e.g. pesticides and endotoxins), as well as other factors. We are currently initiating such a study in the Yamagata population registry.

References

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