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Polish Centenarian Program

Letter to the Editor

Studies on successful aging and longevity: Polish Centenarian Program

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Humanity is aging. It is expected that in 2025 people over 60 years old will constitute 15% of the world population. For example, one third of the populations of Italy, Sweden, Germany and Japan will be seniors. Also in Poland the population of old and very old people is increasing. The increase of mean human lifespan brings both advantages and disadvantages. There is an increased probability of falling ill of age-associated disorders such as diabetes, cardiovascular diseases, cancer, immune disorders and senile dementia. On the other hand, during the last decades, the progress in medicine and science, changes in our lifestyle, as well as other still unrecognized factors have significantly limited the risk of age-associated disorders, thus giving the possibility of prolonging the period of a satisfactory physical and mental condition. We have to face the phenomenon of still relatively low but constantly growing subpopulation of

healthy seniors (currently about one person in 12000-15000 in developed countries has attained the age of 100 years).

Centenarians are the best example of successful aging since they have escaped the major age-related diseases and have reached the extreme limit of human life. According to the available information, about 30-50% of centenarians are in relatively good clinical condition, despite their advanced age. It may be concluded that they represent the optimal combination of an appropriate lifestyle and genetic background. Studying this group is of great biological and medical importance and may ultimately help to identify genes that prevent diseases, thus contributing to long and healthy life. It is important to recruit as many centenarians as possible from different geographic areas, because the study of a limited group of centenarians coming from a single area may be biased owing to great differences

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in lifestyle, especially those which occurred many decades ago, and as well to the differences in the genetic background which can be present among the different countries.

In 1998 the Polish Centenarian Program was organized to elaborate a unified approach for very broad studies of longevity, aimed at analyzing phenomena concerning Polish centenarians for general scientific ideas, as well as comparison of our complex results with other European studies. The following scientists and physicians belong to the Organizing Committee: Maria Barcikowska and Maria Desperat (Medical Research Centre, Polish Academy of Sciences, Warszawa), Krzysztof Galus (Clinic of Geriatric Medicine, Medical Centre of Postgraduate Education, Warszawa), Jacek Kuźnicki and Małgorzata Mossakowska (International Institute of Molecular and Cell Biology, Warszawa) and Ewa Sikora (Nencki Institute of Experimental Biology, Polish Academy of Sciences, Warszawa).

All living Polish centenarians born before December 31st 1898 have been contacted by mail and invited to participate in the Program. 313 out of 1951 agreed and signed the formal agreement.

The questionnaire, elaborated by an Italian group and provided by Professor Claudio Franceschi and Dr. Giovanni Passeri, has been modified to Polish conditions. Fourteen pages of the Polish version of the program contain questions concerning general information such as place of birth, education, working activity, physical exercise, place of living and economic situation during the life time, family members (grandparents, parents, brothers and sisters, children), their life length, diseases, causes of death. The centenarians are asked about behavioural risks such as smoking and drinking, their diet in the past and present, past and present diseases and hospitalisation.

In April 1999 the Polish Centenarians Program was submitted to the Bioethics Committee at the Central Clinic Hospital of the Mili-

tary Medical School in Warszawa. The agreement was granted on May, 1999, which allowed us to initiate physician's visits to centenarians.

Till May 31, 2000, ninety-three centenarians have been examined in the following regions: Łódzkie, Lubelskie, Małopolskie, Mazowieckie, Opolskie, Podkarpackie, Śląskie and Świętokrzyskie. The questionnaires were filled, patients were examined and their blood samples were taken.

The examination included measurement of blood pressure, ECG, hearing, etc. The degree of the centenarians disability was also determined. To evaluate their mental capabilities and memory deficit, the "Mini Mental State" test was performed. Also, a short version of geriatric depression scale questionnaire was completed. Standard morphological and biochemical tests of blood were performed at the Central Laboratory of Warsaw Medical School and lymphocyte phenotyping by flow cytometry in The Flow Cytometry Laboratory, Drug Institute (Warszawa). Ficoll-isolated peripheral blood mononuclear cells are stored vitally in liquid nitrogen to obtain and immortalize lymphocytes B and/or cultivate primary T cells. Genomic DNA have been prepared and tested at the International Institute of Cellular and Molecular Biology (Warszawa).

All information obtained from the questionnaire and blood tests was entered into an "Access data base" using a special software prepared for the Centenarian Program. This database was reported to the office of the Inspector General for the Protection of Personal Data on May 1999.

The conclusions can be drawn only when a sufficient number of participants will have been visited and their data compared with the data obtained from control groups of 65 year old people from the same regions. We are fully aware that the group of Polish centenarians may not be representative, since we have studied only those who have agreed to partici-

pate in the Program. In the future due to having a representative sample, the organizers will attempt to convince more centenarians to participate in the project.

Summing up, the Polish Centenarian Program is the first national multidisciplinary project dedicated to study longevity, which involves geriatricians, gerontologists, neurologists, immunologists, molecular biologists and other physicians and scientists. In a concerted action the organizers together with physicians have prepared an excellent background for recruiting centenarians (and in future control subjects) and a central collection of data and biological materials. The preliminary data obtained from interviews, short medical examinations and blood analysis are in agreement with other studies and show that about 40% of Polish centenarians so far examined are in relatively good health and are

able to actively interact with their environment, can take care of themselves and face everyday life events. The objectives of the project are to obtain insights into the genetic and environmental factors of Polish centenarian longevity.

This is the beginning of a long-term project with a growing number of recruited Polish centenarians. This is also a Polish contribution to broad European studies on centenarians.

The organizers believe that publicity of the results on longevity and aging could positively affect Polish public, medical society and health care. They are also expected to encourage Polish scientists to direct their research on this very promising area. The data base and DNA bank will be available for all qualified researchers.