

Comment on: The great challenge: bone fragility and environment

Sirs,

I was pleasantly surprised to read about osteoporosis in your distinguished *Journal*. The authors Mazzantini and De Mattia published an excellent review of this topic "The great challenge: bone fragility and environment" (1). On the review of pathogenesis, the authors mentioned food deprivation as a cause for high exposure to osteoporosis (2). On this context, I wish to draw the attention of the readers to the publication on "Starvation Osteopathy" (2): it is an extensive review of families of starving prisoners during World War II, on the families of their children (second generation), and their grandchildren (the third generation).

The study is conducted over close to ten years, on people living in five continents and on families dispersed from Europe after World War II. Out of 132 persons with diagnosis of osteoporosis, 84 were well documented and included in the study. They are living in Europe (Hungary, Czech Republic, UK) in Canada (Montreal, Toronto), in USA (NY, Baltimore, Texas, California, Minnesota), in Brazil (S. Paolo), in Australia (Sydney, Melbourne, Brisbane) and in Israel.

Of interest was the diagnosis established in both genders of first survivors, classified as secondary starvation osteopathy, of their children as primary starvation osteopathy and of their children, the inherited starvation osteopathy.

With complete personal data, they were diagnosed on the basis of a DEXA scan (T- and Z- scores). It was interesting that in all categories gender was non-restrictive. Of particular interest were the females with osteoporosis who had a normal monthly cycle in

their late forties or early fifties, and males in their late forties with borderline osteopenia. This was an observational study documenting early on inherited, likely epigenetic osteoporosis in starvation exposed families. It is a public health issue developed in their respective countries, to be searched for and investigated. A case study of one family is presented.

Case report of Family 1

This Hungarian woman was incarcerated first in a country labour camp and was later on transferred to Ravensbrueck concentration camp and then to Leipzig Arbeitslager. She was ordered to hard labour for over 8 months and subjected to severe nutritional deprivation. After the war, she returned to Budapest, started a family and subsequently emigrated to Australia, where she lived to 96 years of age, despite severe osteoporosis. During her lifetime she sustained several fractures and was found to have a T-score -4.4. She had three daughters in good general health, but had low bone density with T-scores of -1.7, -3.3, and -1.5, respectively. The most intriguing observation was that one granddaughter, whilst in good health, at the age of 43 had a bone densitometry reading with a T-score of -2.5, still with her monthly cycle.

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