**Kashin-Beck**

Kashin-Beck disease (KBD) is a chronic, endemic type of osteochondropathy (disease of the bone) that is mainly distributed from northeastern to southwestern China, including 15 provinces. Tibet currently has the highest incidence rate of KBD in China. Southeast Siberia and North Korea are other affected areas. KBD usually involves children ages 5–15. To date, more than a million individuals have suffered from KBD. The symptoms of KBD include joint pain, morning stiffness in the joints, disturbances of flexion and extension in the elbows, enlarged inter-phalangeal joints, and limited motion in many joints of the body.

The etiology of Kashin-Beck disease remains elusive. Four factors have been historically associated with the disease: selenium deficiency, iodine deficiency, grain contamination with mycotoxin-producing fungi, and water pollution with organic material and humic acid [1-4]. The most credible studies from a scientific standpoint, i.e. randomized placebo controlled trials and observational cohort studies have either not been conducted or did not provide unequivocal demonstration in favor of any of these hypotheses [5-8]. Many studies such as case-control, cross-sectional, "before-after", and even more so, ecological studies have been conducted. They merely produced weak evidence and fail to support any single factor to the exclusion of the others. The most scientifically sound studies have included animal models, laboratory experiments and pathology studies; however, these have only provided indirect evidence [9-11].

There are no clear indicators present in the literature that directly link humic acid in drinking water to Kashin-Beck disease. In fact, several authors propose a plausible link to KBD, as more than one factor [12-14]. KBD appears only to be mainly distributed from northeastern to southwestern China suggesting the casual agent(s) are strongly associated with these geographic areas.

A review of the scientific literature on the possible causal link to Kashin-Beck disease provides an indication that a comprehensive and unifying theory is most likely to be multifactorial. Because the ultimate goal of those who are compelled by the challenge of KBD is to prevent its occurrence, a perfect understanding of its mechanisms is not indispensable for action. Well-conducted randomized intervention should be the priority of researchers in order to elucidate the etiological factors responsible for KBD.

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