Can Soluble Klotho Protein Be a Potential Tumor Biomarker?

To the Editor

We read with great interest the article by Devaraj et al.1 According to the authors, soluble Klotho protein (sKL) appears to be an effective biological factor related to diabetes and chronic kidney disease. However, there is a paucity of data on sKL levels in patients with cancer. Therefore, we put forward these questions: Can we detect the level of sKL in the serum samples of patients with cancer? Is there a difference in sKL levels between healthy people and patients with cancer? Can sKL be a potential tumor biomarker?

Some scholars have reported that Klotho may have a relation to tumorigenesis.2-4 The Klotho gene has been found to function as an in vitro and in vivo tumor suppressor in breast, pancreatic, and other cancers by blocking the insulin-like growth factor 1/insulin and transforming growth factor β1 pathways. Tissue microarrays showed lower expression of Klotho protein in breast and pancreatic cancer tissues compared with normal tissues. It was estimated that the expression of Klotho was restrained in the process of tumorigenesis. Two forms of Klotho exist, membrane and secreted, the latter produced by the shedding of the transmembrane protein. To date, it has not been reported whether sKL is related to human tumor. So the first step for us is to try to compare sKL levels in normal people and patients with cancer. However, the concern with this is that because the sKL level could be affected by many factors such as age, diabetes, kidney disease, and others,5 in patients with cancer the sKL level would vary because of such factors, in addition to the cancer itself. Therefore, the specificity of sKL in the early diagnosis might become uncertain and questionable.

In conclusion, because KL may function as a tumor suppressor and expression of membrane KL was found to be lower in some cancer tissues, it is necessary and significant to detect the sKL level in serum samples of patients with cancer and investigate the relationship between sKL and cancer in future studies. sKL may be a valuable serum marker that can aid in the early diagnosis of cancer.

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References