Docosahexaenoic Acid Inhibits Cell Growth of Renal Cell Carcinoma

Introduction and Objective: Although it is well known that renal cell carcinoma (RCC) includes much abundant glycogen or lipid, distribution or function of fatty acid remains elucidated.
Materials and Methods: We demonstrated RCC fatty acid profile by imaging mass spectrometry (IMS) using frozen sections including tumor and normal tissue in the seven removed kidneys, and measured the concentration of fatty acids in renal cancer cell lines. We also examined whether polyunsaturated fatty acid (PUFA) affects cell growth of renal cancer cell lines by MTS assay.
Results: The uptake of linoleic acid or Docosahexaenoic acid (DHA)/ eicosapentaenoic acid in tumor part was increased and decreased compared to that of normal part, respectively, irrespective of tumor stage and grade. The concentration of fatty acids in cell lines also had the same tendency. The cell growth inhibition depended on the cell concentration. In addition, DHA was more effective than linoleic acid in cell growth inhibition.
Conclusions: DHA may be a candidate for the treatment of RCC.