Therapeutic effects of compounds found in Kampo medicine: Analysis of daikenchuto

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Kampo, a distinctively unique Japan’s traditional herbal medicine, is fully integrated into the modern health care system in Japan, it is neither a folk remedy nor alternative therapy in Japan. Kampo medicines are dispensed at all the university, national, and foundation hospitals as prescription drugs, frequently in combination with western drugs. Rooted in Chinese medicine, Kampo followed a decidedly unique path of development in Japan. Since 1986 daikenchuto (DKT) has been prescribed for the treatment of two symptoms: abdominal bloating and cold sensation in the abdomen and Japanese government insurance started to cover the medical fee of DKT. DKT is the most frequently prescribed as Kampo medicine in Japan, especially in the field of gastroenterology. The formulation of DKT is composed of extract granules of Japanese pepper, processed ginger, and ginseng radix with maltose powder. There has been a recent surge in scientifically robust data from basic and clinical studies for DKT. Clinical studies on DKT, including placebo-controlled double-blind studies for various gastrointestinal disorders, and pharmacokinetic studies, have been conducted or are in the process of being conducted in both Japan and the USA. Clinical studies suggest that DKT is beneficial for postoperative complications, especially ileus and abdominal bloating. Pharmacokinetic and basic studies indicate that the effect of DKT is a composite of numerous actions mediated by multiple compounds supplied via multiple routes. In addition to known mechanisms of action via enteric/sensory nerve stimulation, novel mechanisms via the TRPA1 channel and two pore domain potassium channels have recently been elucidated. DKT has also effects on improving intestinal blood flow. The critical players responsible for vasodilatory effects are the two peptides, calcitonin gene-related peptide (CGRP) and adrenomedullin (ADM). Another important factors for understanding the mechanism of action of DKT is through study of the receptors involved. When DKT stimulates CGRP and ADM, simultaneously up-regulates CRLR and RAMPs, and develops up-regulation of CGRP and ADM receptors. DKT compounds target these channels with and without absorption, both before and after metabolic activation by enteric flora, with different timings and possibly with synergism. We advocate the worldwide availability of Kampo medicines.