Plant and food-based compounds may be key to future cancer prevention

November 18 2015

Advancements in precision medicine have led to many new targeted cancer therapies for cancer patients. These treatments focus on using agents that target one or two genes that contribute to tumor development. The approach tends to be more effective against cancer cells and less toxic toward normal cells than standard chemotherapeutic regimens.

However, while new precision medicine treatments have increased the lifespan of many patients with cancer, the majority of patients eventually relapse, with some patients only achieving remission for a few months. Additionally, these novel targeted agents are also associated with significant toxicity and exorbitant costs. These limitations are particularly troubling for less-developed countries.

With that in mind, Getting to Know Cancer, a non-profit organization based in Canada, sponsored The Halifax Project, an international task force to develop a new approach to cancer prevention and therapeutics. Nagi B. Kumar, Ph.D., R.D., F.A.D.A., director of Cancer Chemoprevention at Moffitt Cancer Center, was one of 180 scientists who participated in the task force.

Rather than targeting one or two specific genes or proteins that contribute to cancer, the task force was charged with researching a broad-spectrum approach. "This type of approach involves combinations of multiple low-toxicity agents that can collectively impact many pathways that are known to be important for the genesis and spread of cancer," said Kumar.

The task force focused on chemicals derived from plants and foods that have been studied for cancer prevention and treatment. These agents tend to be less toxic than drugs that are currently being used in the clinic or in development. The scientists prioritized agents that had the greatest potential activity against tumors, those that were less expensive, and those that were free from intellectual property constraints.

The research teams proposed the inclusion of 74 different cellular targets involved in the development of cancer, and compiled a list of agents from plant and food-based chemicals and approaches that may be most effective when used in combination against those targets. Some of the agents included green tea catechins, isoflavones, lycopene, luteolin, anthocyanins and curcumin- which are currently being tested in clinical trials by Dr. Kumar and her team at Moffitt. .

The organizers were encouraged by the consensus among the scientists and hope that their efforts will lead to improved treatments for cancer patients who develop resistance to standard therapies and relapse.

The task force emphasized that the future advancement of these non-toxic agents in combination requires both interdisciplinary and international collaboration. They called for an increase in advocacy and financial support for this approach.

More information: www.sciencedirect.com/science/ … ii/S1044579X15000887

Provided by H. Lee Moffitt Cancer Center & Research Institute

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