

ABSTRACT

Phytoestrogens in Jamaican Foods and their Association with Uterine Leiomyomas (fibroids).

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Phytoestrogens are polyphenolic plant compounds that exhibit oestrogenic or anti-oestrogenic activity in humans. Research suggests that the extent of dietary phytoestrogen intake may explain the epidemiologic disparity of many hormone-dependent diseases. We therefore analyzed some commonly eaten Jamaican plants to determine their phytoestrogen content and then, in a case-control study, investigated the possible association between phytoestrogen exposure and the occurrence of uterine fibroids (UF).

Plant phytoestrogen determination incorporated polar solvent extraction, sample hydrolysis, clean-up and liquid chromatography and mass spectroscopy analysis. Spot urine samples from UF cases and controls were analyzed for phytoestrogens metabolites and serum for other physiological factors thought to affect UF risk. Isoflavones were detected in Gungo peas (*Cajanus cajan*) and Chocho (*Sechium edule*). Overall findings indicate that lignans are present in moderate levels in Jamaican plants and were particularly abundant in plants used for teas and spices (e.g. Fever grass (*Cymbopogon citratus*), Cerasee (*Momordica charantia*), peppermint (*Micromeria viminia*) and nutmeg (*Myristica fragans*). Frequent consumption of watermelon, pumpkin and red peas stew appeared to be protective against fibroids, while fried plantain consumption was associated with increased risk. The consumption of soy foods and lentils was positively correlated with urinary isoflavone excretion, while the consumption of ackee, green bananas and fried plantain was negatively correlated. Carrot, turnip, breadfruit and red wine consumption positively correlated with urinary enterolactone (lignan) excretion. Urinary equol was found to be moderately associated with UF and appeared to be protective. High serum levels of total cholesterol (a confounding factor) were positively associated with the occurrence of fibroids.

There is an inverse association between the intake of some fruits and vegetables, urinary equol (the main metabolite of daidzein) excretion and the presence of UF in Jamaican women.

Key words: Phytoestrogens, isoflavones, lignans, Jamaican plants, liquid chromatography mass spectrometry (LC-MS), uterine leiomyomas (fibroids), equol excretion, Jamaican women, Garfield Simon.