Digoxin use and the risk of breast cancer in women

31 March 2011

A large Danish nationwide study of 2,116,029 women reports that use of digoxin may increase the risk of breast cancer.

Digoxin resembles estrogen

It is well known that exposure to exogenous estrogens (as in hormone replacement therapy (HRT)) increases the risk of breast cancer in women. Digoxin resembles estrogen chemically, and researchers at SSII have examined whether digoxin use might increase breast cancer and whether use might be associated with risk of breast cancer by estrogen-receptor status.

Heart disease treatment and breast cancer risk

Digitalis (digoxin) is among the oldest effective therapies for heart diseases. To determine if being under care for heart disease biased the findings, the researchers studied cancer risk among users of angina drugs (vasodilators) in a control exposure group.

Increased risk in digoxin users but not in angina drug users

Women using digoxin and angina drugs were identified through the Danish national registers enrolling all persons in Denmark. The study population consisted of all women in Denmark ≥ 20 years old at any time from 1995-2008. Of 104,648 women using digoxin, 2,144 developed breast cancer. Current digoxin users were at increased risk of breast cancer, but risk was not increased in former users. Among 137,493 women exposed to angina drugs only (2,658 breast cancers), incidence was not increased in current or former users. The increased risks in digoxin users were marginally higher for estrogen-receptor (ER)-positive cancers and breast cancers with unknown ER status.

Risk normalizes following discontinuation of digoxin use

The study found convincing evidence that current digoxin use significantly increases the risks of breast cancers by approximately 40%. Following discontinuation of digoxin use, however, the risk normalizes rapidly. The higher risk of estrogen-receptor-positive than estrogen-receptor-negative breast cancers in digoxin users suggests an estrogen-mimicking mechanism.

Digoxin use important in treatment of heart disease

Although the digoxin effect we observed was similar to that of postmenopausal estrogens, it was nevertheless small, and the importance of digoxin in the clinical treatment of heart disease may outweigh our inferences regarding increased risks of breast cancer.

Read the scientific article


What is digoxin?

A cardiac glycoside of purified digitalis, derived from the plant leaves of Digitalis lanata and widely used in the treatment of congestive heart failure.

(Source: dictionary.com)