



Media Release

4 February = World Cancer Day

BREAST CANCER PREVENTION – SIGNIFICANT PROGRESS: 49% reduction in breast cancer occurrence with anastrozole

Brussels/London, 23 January 2020 - **Long-term follow-up results of the International Breast cancer Intervention Study IBIS-II has demonstrated a 49% overall reduction in breast cancer occurrence with anastrozole. This was based on a 61% reduction during the 5-year treatment period and an additional 36% reduction in the 5-12 year post-treatment follow-up period. These results indicate a long-term preventive benefit with the aromatase inhibitor anastrozole based mostly on ER-positive breast cancer in postmenopausal women at increased risk of developing breast cancer, suggesting that anastrozole should be the first option in breast cancer prevention for most women with a higher risk of disease occurrence.**

During the annual San Antonio Breast Cancer Symposium (SABCS), which took place in Texas (USA) from 10 to 14 December 2019, Prof. Jack Cuzick, Principal Investigator of the International Breast cancer Intervention Study IBIS-II, *Director, Wolfson Institute of Preventive Medicine and Head, Centre for Cancer Prevention and John Snow Professor of Epidemiology at Queen Mary, University of London*, presented the long-term results of the trial.

These results are very important, and substantially strengthen the findings from the initial report after a 5-year median follow-up, with no evidence of new late side effects. They provide crucial information about the effects of anastrozole in preventing breast cancer in women at high risk of the disease. It is hoped that they will lead to a change in clinical practice with anastrozole being routinely prescribed as preventive medicine for post-menopausal women at high risk of breast cancer. The results of the study were published in *The Lancet* on 12 December 2019:

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)32955-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32955-1/fulltext)

Professor Jack Cuzick: “The long-term follow-up of the IBIS-II Prevention trial provides additional support for the use of anastrozole as the treatment of choice for breast cancer risk reduction in most postmenopausal women at high risk of developing breast cancer. These positive results make it even more important to identify which women are most at risk of breast cancers likely to be prevented by this agent (e.g. ER+ breast cancer as a start). There are several well documented risk factors for breast cancer which could be assessed routinely, ideally at the time of the first mammogram. Also, it is important to determine the optimal length of the preventive therapy - IBIS-II showed a much larger effect during active treatment than afterwards, but even afterwards, the continued benefit was larger than that seen for tamoxifen. While overall the benefits are larger for anastrozole, not all women are protected and further work is needed to determine which patients would benefit most from an aromatase inhibitor, and which would be better treated with tamoxifen. Another key point is that both prevention and screening interventions require a long follow-up to get a complete picture, and this needs to be more widely appreciated and accommodated in funding streams. Even 10-year follow-up is not enough, especially when we look at the influence on deaths. These numbers are still very small and another 10 years will be needed for this.”

Anastrozole is an aromatase inhibitor

Aromatase inhibitors stop the production of oestrogen in postmenopausal women. They work by blocking the enzyme aromatase, which converts certain androgenic hormones into oestrogen in the body. This means that less oestrogen is available to stimulate the growth of hormone-receptor-positive breast cancer (ER-positive) cells.

Research has shown that **anastrozole** is more effective than **tamoxifen** in preventing the return of cancer in post-menopausal women who have an early breast cancer removed. Tamoxifen is in a class of medications known as selective oestrogen receptor modifiers (SERMs), which block the activity of oestrogen in the breast, rather than its production. In post-menopausal women who have had their early breast cancer removed, anastrozole reduces their risk of developing a new cancer in the opposite (contralateral) breast by 53% compared to tamoxifen. **This is a very strong indicator that anastrozole will be more effective than tamoxifen in preventing breast cancer in women who have not yet developed the disease.**

Research has also shown that anastrozole has fewer serious side effects than tamoxifen, which can cause womb cancer and blood clots. However, anastrozole does have some side effects such as hot flushes, vaginal dryness and an increase risk of osteoporosis. A major finding was that if osteoporosis is evaluated before beginning anastrozole and appropriate treatment is given to those with low bone density, no increase in fractures was seen.

About the IBIS-II Prevention trial

This international, randomised, double-blind, placebo-controlled breast cancer prevention trial is analysing the use of anastrozole versus placebo in postmenopausal women at increased risk of breast cancer. It aims to determine whether anastrozole can lower the risk of breast cancer in these patients.

In total, 3,864 high-risk postmenopausal women aged 40-70 years from 153 centres in 19 countries were recruited between February 2003 and January 2012. They were randomly assigned to receive 1 mg/day of anastrozole for 5 years (n = 1,920) or placebo (n = 1,944). After treatment completion, women were followed on a yearly basis. The primary outcome measure was development of histologically confirmed breast cancer, both invasive and non-invasive.

The IBIS-II Prevention trial is run by the International Breast Cancer Intervention Study group (IBIS), with the support of the Breast International Group (BIG). The study was funded by Cancer Research UK, the National Health and Medical Research Council Australia, Breast Cancer Research Foundation, Sanofi Aventis, and AstraZeneca. The funders played no role in the study design, data collection, data interpretations or writing of the report.

Study details:

- * **Official title:** International Breast Cancer Intervention Study
- * **Current primary outcome:** development of histologically confirmed breast cancer, both invasive and non-invasive
- * **Current secondary outcome:** breast cancer mortality
- * **Study start date:** September 2003
- * **Estimated study completion date:** January 2022
- * **Recruitment state:** in follow-up - not recruiting
- * **Brief summary:** RATIONALE: Chemoprevention therapy is the use of certain drugs to try to prevent the development of cancer. Anastrozole may be effective in preventing breast cancer
PURPOSE: This randomised clinical trial is studying how well anastrozole works in preventing breast cancer in postmenopausal women who are at increased risk for the disease.
- * **Accrual:** a total of 3,864 high-risk postmenopausal women aged 40-70 years were recruited for this study over 10 years
- * **Study type:** interventional (drug: anastrozole, aromatase inhibitor, other name: Arimidex vs drug: placebo, Arimidex placebo)
- * **Study phase:** 3
- * **Countries involved:** Australia, Belgium, Chile, Denmark, Egypt, Finland, Germany, Hungary, Ireland, Italy, Malta, New Zealand, Pakistan, Peru, Portugal, Russia, Switzerland, Turkey, United Kingdom
- * **Study sponsor:** Queen Mary University of London
- * **Investigators:** Study chairs: Jack Cuzick, PhD (Queen Mary University of London) and Anthony Howell (University of Manchester)
- * **NCT number:** NCT00078832

About breast cancer – global figures

According to recent figures (source: GLOBOCAN 2018¹), breast cancer was by far the most common cancer among women in 2018 (24%), with 2.1 million people diagnosed and no fewer than 627,000 deaths (72 deaths/hour) worldwide, of which 98,755 in Europe. It is the cancer that causes the most deaths in absolute terms.

Breast cancer incidence rates are highest in the so-called developed regions (Australia, New Zealand, Europe and North America). The European Cancer Information System (ECIS) estimates that 404,920 women in Europe were diagnosed with breast cancer in 2018. Fortunately, mortality rates are falling thanks to the research conducted to date, which has led to more personalised treatments.

1. The last release of the GLOBOCAN database (September 2018) includes estimates of the incidence of mortality and prevalence from 36 types of cancer and for all cancers combined in 185 countries of the world. The estimates are presented for 2018, separately for each sex and for the 18 traditional age-groups. The results are available at the IARC (International Agency for Research on Cancer) Global Cancer Observatory web site (<http://gco.iarc.fr/>).

About the International Breast Cancer Intervention Study group

IBIS is an international collaborative group based at Queen Mary University of London (UK) that focuses on trials of drugs to prevent breast cancer. Two large trials have been completed – IBIS-I which compared tamoxifen to placebo in 7,154 high-risk women, and most recently has reported 16-year median follow up (*Cuzick et al, Lancet Oncol 2015; 16: 67–75*). IBIS-II evaluated the aromatase inhibitor anastrozole vs placebo in 3,864 high-risk postmenopausal women (*Cuzick et al, Lancet. 2020 Jan 11;395(10218):117-122*) which now has a 10.9-year median follow up time. www.ibis-trials.org/.

About Queen Mary University of London

At Queen Mary University of London, we believe that a diversity of ideas helps us achieve the previously unthinkable. In 1785, Sir William Blizard established England's first medical school, The London Hospital Medical College, to improve the health of east London's inhabitants. Together with St Bartholomew's Medical College, founded by John Abernethy in 1843 to help those living in the City of London, these two historic institutions are the bedrock of Barts and The London School of Medicine and Dentistry.

Today, Barts and The London continues to uphold this commitment to pioneering medical education and research. Being firmly embedded within our east London community, and with an approach that is driven by the specific health needs of our diverse population, is what makes Barts and The London truly distinctive.

Our local community offers to us a window to the world, ensuring that our ground-breaking research in cancer, cardiovascular and inflammatory diseases, and population health not only dramatically improves the outcomes for patients in London, but also has a far-reaching global impact.

This is just one of the many ways in which Queen Mary is continuing to push the boundaries of teaching, research and clinical practice, and helping us to achieve the previously unthinkable. www.qmul.ac.uk/.

About the Breast International Group

The Breast International Group (BIG) is an international not-for-profit organisation for academic breast cancer research groups from around the world, based in Brussels, Belgium.

Global collaboration is crucial to make significant advances in breast cancer research, reduce unnecessary duplication of effort, share data, contribute to the faster development of better treatments, and increase the likelihood of cures for patients. Therefore, BIG facilitates breast cancer research at international level, by stimulating cooperation between its members and other academic networks, and collaborating with, but working independently from, the pharmaceutical industry.

Founded by leading European opinion leaders in 1999, BIG now constitutes a network of 57 collaborative groups from Europe, Canada, Latin America, Asia and Australasia. These entities are tied to several thousand specialised hospitals and research centres worldwide. More than 30 clinical trials are run or are under development under the BIG umbrella at any one time. BIG also works closely with the US National Cancer Institute (NCI) and the North American Breast Cancer Groups (NABCG), so that together they act as a strong integrating force in the breast cancer research arena. www.BIGagainstbreastcancer.org.

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BIG against breast cancer

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