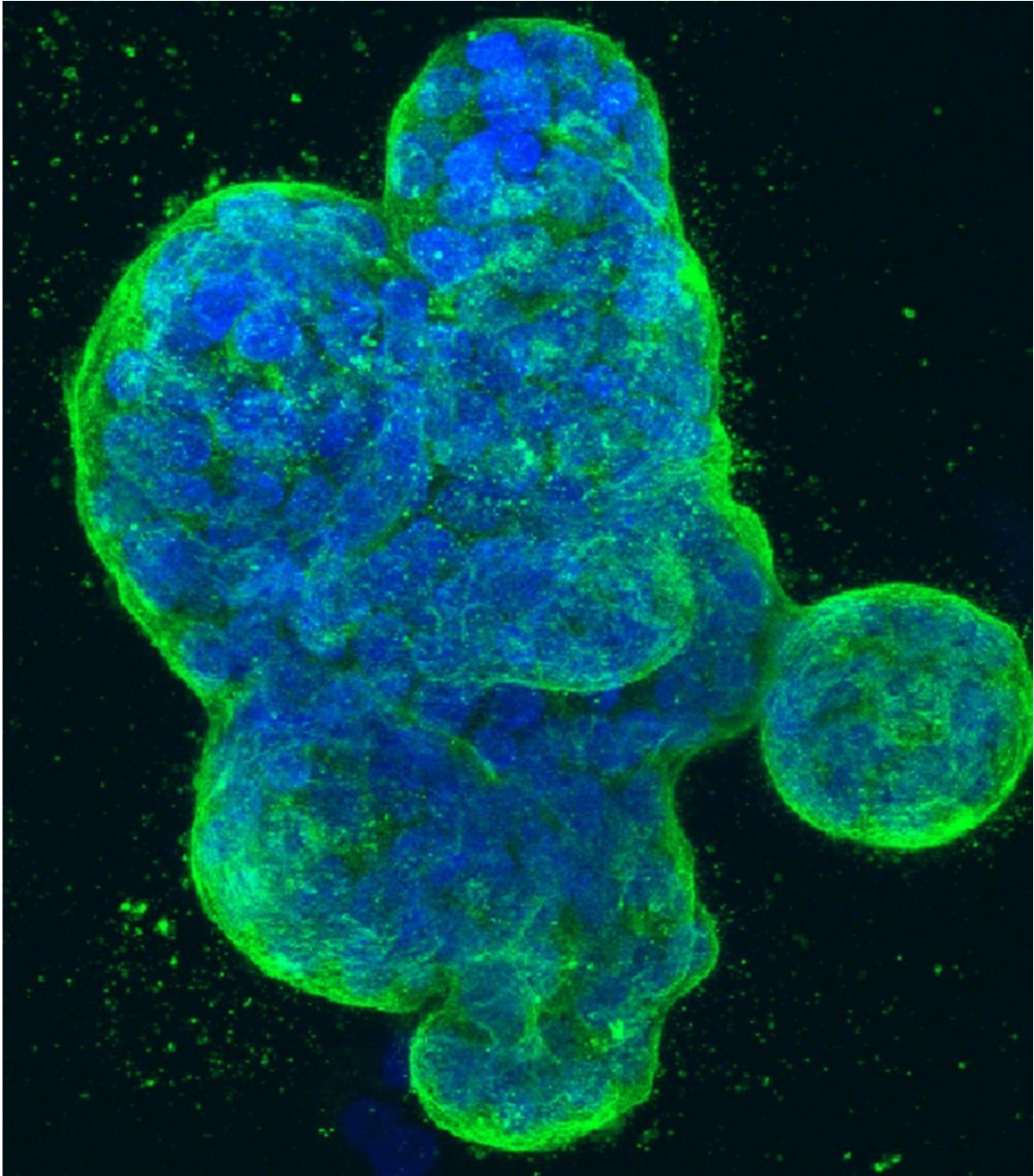


Two studies show how older breast cancer patients can be treated more effectively

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Three-dimensional culture of human breast cancer cells, with DNA stained blue and a protein in the cell surface membrane stained green. Image created in 2014 by Tom Misteli, Ph.D., and Karen Meaburn, Ph.D. at the NIH IRP.

Women with breast cancer who are aged older than 70 years are sometimes not offered surgery, chemotherapy or radiotherapy because doctors believe their patients will not be able to tolerate these treatments and will derive little benefit from them. These decisions may contribute to worse breast cancer survival rates for older women than for younger ones, although many older women will not benefit from more aggressive treatments and so may avoid harm from over-treatment.

New research to be presented on Friday at 12th European Breast Cancer Conference shows that the majority of [older women](#) can tolerate surgery and all but the least fit should be offered it to help bridge the gap in survival rates between older and [younger women](#).

Lynda Wyld, Professor of Surgical Oncology at the University of Sheffield, UK, will tell the 'virtual' conference that results from a study of 3416 women from 56 UK [breast cancer](#) units show that among the 2979 women whose [cancer](#) was driven by the oestrogen hormone (ER positive), 2354 (82%) were treated with surgery and 500 (18%) with anti-oestrogen tablets only.

"The tablet-only group were an average of eight years older and significantly less fit than the surgery group," she said. "Not surprisingly, when unadjusted analysis of overall survival was performed, 203 of the 486 women on tablets only, for whom we have complete data, died compared to 336 out of 2307 women treated with surgery after follow-up of 52 months." This equates to 41.8% of women on tablets only compared to 14.6% who had surgery.

Death rates specifically from breast cancer, unadjusted for factors that could affect the outcomes such as age and fitness, were 45 out of 476 (9.5%) in the tablet-only group compared to 113 out of 2293 (4.9%) in the surgery group.

After adjusting for age, stage of the tumour, other diseases and levels of activity, Prof Wyld and her colleagues identified 426 women who received surgery and 240 who received tablets only who were of similar ages, fitness and frailty levels. In this matched group of women, 79 out of 229 (34.5%) women treated with tablets only had died of any cause compared to 106 out of 414 (25.6%) surgery patients at 52 months follow-up.

However, in this matched group, there were 7 out of 223 (3.1%) deaths from breast cancer among tablet-only women versus 27 out of 408 (6.6%) women who had surgery.

There were no deaths attributed to surgery among the whole group of 3416 older patients and only 2% of the entire cohort of 2354 women suffered serious side effects from surgery (such as strokes or heart attacks).

"For most women, surgery is well tolerated and should be the aim of treatment if possible, as we have shown that surgery is generally well tolerated and survival rates are slightly lower in women who do not have surgery," said Prof Wyld. "However, when we looked at the two treatments in a less fit group of older women, these differences in breast cancer survival disappeared. In addition, their quality of life and their ability to engage in everyday activities deteriorated more after surgery than for women who just had hormone tablets. This also must be weighed up against the potential difference in survival between surgery and primary hormone therapy.

"These findings suggest that for older, less fit, frailer women with hormone-positive breast cancer, hormone therapy alone is likely to be as good as surgery if their life expectancy is less than four to five years."

Until now, there have been no guidelines to help clinicians and patients

choose the most appropriate treatment that takes account of varying levels of fitness.

Prof Wyld said: "We have used the data from this study to develop [online tools](#) to determine whether older women will benefit from surgery or not, which may help in the [decision](#)-making process. These have now been made freely available on the web."

She presented the first results from a second study, a randomised controlled trial of the world's first web-based decision support tools created for this purpose. One [tool](#) supports decisions about whether to have surgery followed by hormone therapy (as adjuvant therapy) or hormone therapy alone; the second tool supports decisions about whether or not to have adjuvant chemotherapy after surgery in older women.

A total of 1339 women from the same group in the first study were recruited to this second study. They were aged 70 or older and had operable breast cancer. Forty-six breast cancer clinics took part in the trial and were randomised, with 21 clinics using the decision support tools and 25 clinics using the usual decision-making processes to help support the women in their choice of surgery or hormone tablets only, or chemotherapy or not after surgery.

The decision support tools consist of an algorithm available to clinicians online and booklets for patients to take away with them after discussions with their cancer doctor.

"We found that treatment choices changed as a result of using the decision support tools and patient knowledge about the available options was better," said Prof Wyld. "Patients rated the decision aids highly, and there was a small difference in the quality of life afterwards among the women who were offered the choice between surgery or hormone-only treatment."

At clinics using the decision support tools, in women offered a choice of hormone tablets only or surgery, knowledge about treatments was greater: 94% (63 out of 67 women) versus 74% (43 out of 58 women) among women in clinics providing usual care. Treatment choice was altered: 21% (123 of 591 women) chose to have hormone treatment only, compared to 15% (88 of 570 women) at clinics using the usual decision-making processes. Among women with tumours that were at high risk of recurring or spreading to other parts of the body, uptake of adjuvant chemotherapy was similar between those using the support tools and those who were not.

Overall, quality of life was similar among the women six months after the start of the study, although there was a small, four point decline in the score for quality of life among women treated with surgery and who had been offered this choice.

Prof Wyld explained: "If we look at all women at the centres, many will not have been offered a choice; for example, a fit woman with no health problems will just have been told she needed surgery. Therefore, if we analyse all patients in the two arms of the trial, quality of life was not different. However, if we only analyse the patients who were offered a choice—the frailer, less fit women—there is a difference in favour of use of the decision aid, as they tended to decide against surgery or chemotherapy in favour of a better quality of life."

She said that in the next five to ten years, she and her colleagues would explore whether deciding against surgery had an impact on survival, although at present it did not seem to have had a negative impact, with similar numbers of deaths from all causes in each arm of the trial. After three years of follow-up, there were 94 deaths (14%) in the group of 670 women who used the decision support tools versus 90 deaths (13.4%) in the group of 669 women who received usual care. For deaths specifically from breast cancer, there was no difference in survival; there were 29

out of 670 (4.3%) in the group using the decision support tools compared to 34 out of 669 (5.1%) receiving usual care.

Although the results presented from the first abstract showed that surgery was more effective than hormone therapy alone, the results of the second abstract showed that when using the decision support tools, more older women opted not to have surgery.

"This was a surprise to us, but it reflects the importance of giving women the right to choose based on their own personal priorities," said Prof Wyld. "What we have found is that although more women who used the decision support tools received hormone tablet-only therapy rather than surgery, the survival rate from breast cancer was similar regardless. However, this needs to be confirmed by data after longer follow-up."

She concluded: "We hope that use of the tools will help to reduce some of the variability of practice regarding the treatment of older [women](#) and hopefully also improve outcomes and strengthen the role of the patient in making an informed decision."

Co-chair of EBCC12, Professor Javier Cortes, is clinical investigator of the breast cancer research programme at Vall d'Hebron Institute of Oncology, Barcelona, Spain, and head of the breast cancer programme at the IOB Institute of Oncology, Madrid and Barcelona, and was not involved with this research. He commented: "It can be hard to decide on the best treatment for older patients with [breast](#) cancer. When they are frail, unfit and have several other health problems, [quality of life](#) may be more important to them than length of life. However, [surgery](#) is often the most effective primary treatment. The findings from these two linked studies help patients and their doctors make their decisions based on the best available evidence, with the decision support tools ensuring that the most appropriate treatment is chosen, based on the individual

patient's circumstances and wishes. It will be important to see what the longer follow-up reveals in terms of survival."

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