

Cancer during pregnancy: Chemotherapy and radiotherapy are safe for babies, studies show

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Children who are exposed to chemotherapy or radiotherapy while in the womb suffer no negative impacts on mental or cardiac development, international studies presented at the ESMO 2014 Congress in Madrid have shown.

"When [chemotherapy](#) is administered after the first trimester of pregnancy, we cannot discern any problems in the children," says lead author Dr Frederic Amant, KU Leuven and University Hospitals Leuven in Belgium. "Fear about the risks of chemotherapy administration should not be a reason to terminate a pregnancy, delay [cancer](#) treatment for the mother, or to deliver a baby prematurely."

Concerns about the potential impact of cancer treatment on unborn children has until recently left some oncologists hesitant to administer treatments to pregnant cancer patients, says Amant. To address these concerns, his group has led three new studies presented at ESMO 2014.

In the first study, 38 children prenatally exposed to chemotherapy were recruited from the International Network for Cancer, Infertility and Pregnancy (INCIP) registry and assessed for mental development and [cardiac health](#). Their outcomes were compared to 38 control children who were not exposed to chemotherapy.

At a median age of almost two years of age, mental development as measured by the Mental Development Index was in the normal range for both groups of children, and were not significantly different. Cardiac dimensions and functions were within normal ranges for both groups.

This is the first case control study on the developmental outcome of children exposed in utero to chemotherapy. It shows that

chemotherapy during pregnancy can be considered safe for [mental development](#) and cardiac functioning of the child, the authors say.

Commenting on the results, Dr Fedro Alessandro Peccatori, Director of the Fertility & Procreation Unit at the European Institute of Oncology's Division of Gynaecologic Oncology, who was not involved in the study, said that these results confirm that chemotherapy administration during pregnancy does not alter neurodevelopment after birth, nor cause cardiac alterations.

"This paper points to the very important issue of long-term safety of prenatal exposure to chemotherapy and reinforces the notion that chemotherapy during gestation does not endanger the fetus and her or his subsequent development. To further ameliorate neonatal outcome, a special effort should be made to prolong pregnancy duration, and stringent long-term follow-up should be pursued to confirm these findings. Meanwhile, specific measures to support prematurely delivered babies and their families should be implemented.

Future studies will explore the effects of specific chemotherapy types in detail, and longer term follow-up, to fine tune the findings.

In a second study, Amant and colleagues explored the impact of radiotherapy on the children of women with cancer.

The study included 16 children and 10 adults who had been exposed to radiotherapy in utero. This is the first long-term follow-up study of children prenatally exposed to medical radiation, and the study showed that neuropsychological, behavioral and general health outcomes for those exposed to radiotherapy were within normal ranges. One child revealed a severe cognitive delay, however other

pregnancy-related complications are confounding factors, they report.

Amant hopes the new results will provide clinicians with the evidence they need to ensure pregnant women with cancer receive the best quality care. "It's a good feeling to know that research data can be implemented immediately into the clinic. Our data will inform physicians and patients and help them to take decisions in a difficult situation."

Commenting, Peccatori noted that the long-term follow-up of children and adults whose mothers have been treated with radiation therapy during gestation is an important topic.

"The main message is that neuropsychological, behavioral and general health outcomes were within the normal range in all, but 3 of the 16 children studied. This is the first long-term follow-up study of children and adults exposed to radiotherapy in utero. Pregnancy, particularly advanced pregnancy, has been traditionally considered a contra-indication to radiotherapy. New radiation techniques and more sophisticated simulations of the received fetal dose may change this scenario, but caution remains mandatory when giving radiotherapy to a pregnant woman, particularly in the third trimester."

Sentinel node biopsy safe for pregnant women with cancer

It is safe and effective to check for the spread of early breast cancer in pregnant women using sentinel node biopsy rather than completely dissecting the node, researchers from the International Network of Cancer, Infertility and Pregnancy and the German Breast Group have shown in another study presented at ESMO 2014 in Madrid.

Sentinel lymph node biopsies have been the topic of intensive research over the last 2 decades, and have replaced the older and more invasive method of axillary lymph node dissection for women patients without clinically suspicious axillary lymph nodes.

This method removes the first (or 'sentinel') lymph

node receiving lymphatic drainage from the tumour, therefore most likely to contain metastatic cells. If the SLN does not contain metastatic disease, the remainder of the lymph nodes do not have to be removed, thereby sparing the patient the associated side-effects such as lymphedema and reduced movement.

The latest guidelines for doctors still advise that they perform axillary lymph node dissection and avoid sentinel lymph node biopsy during pregnancy, due to lack of safety data, explains Sileny Han of University Hospitals Leuven, Belgium, who is presenting the results of a new study at ESMO 2014. "We aim to add to the body of evidence that sentinel node biopsy is feasible during pregnancy and should be considered an option."

This study is the largest series to date to assess this question. The researchers studied 97 women with breast cancer who underwent sentinel node biopsy. Their aim was to assess whether the sentinel lymph node procedure is safe from an oncologic point of view for the mother.

After a median follow-up of 35 months, eight patients had experienced a loco-regional relapse, meaning their cancer recurred in the same or other breast, the chest wall, including two who developed tumours in their [lymph nodes](#). Four patients developed distant metastases, of whom three died of breast cancer.

These results show that sentinel lymph node biopsy during pregnancy has a low axillary recurrence rate, they write. "This staging method can be considered during pregnancy instead of standard axillary lymph node dissection for early stage, clinically node negative breast cancer."

Adds Peccatori, co-author on this study: "Axillary staging in early breast cancer is a changing paradigm. Data from different institutions in Europe and US have demonstrated that in non-pregnant patients, sentinel node biopsy is an effective staging procedure that holds equivalent results to axillary lymph node dissection even in patients with up to three positive sentinel nodes, if post operative systemic treatment is adequate. Furthermore, hand

sentinel [node biopsy](#) is associated with improved arm motility, decreased armpit pain and numbness and shorter hospital stay. Why should we deny this procedure to pregnant breast cancer patients?"

Provided by European Society for Medical Oncology

Unplanned pregnancy during cancer treatment

Another study from Amant's group shows the importance of thinking about contraception during cancer diagnosis and cancer treatment. Sarah van Peer and colleagues checked the database of the International Network for Cancer Infertility and Pregnancy for women who became pregnant during cancer diagnosis or during treatment.

The INCIP database currently includes 1011 patients from 21 countries (at the time it included 897 patients).

Overall, 3.23% (29/897) of the patients in the database became pregnant after cancer diagnosis or during treatment. Of those 29 patients, three pregnancies were identified during diagnostic examinations for suspected malignancy but before definite diagnosis, 18 during treatment, and seven after cancer diagnosis but before treatment was started.

"The core message from our results is that it is vital for doctors and patients to discuss contraception during cancer diagnosis and cancer treatment. Although fertility issues are not the focus of attention at this time, it is necessary to provide advice about contraception. And although we know it's possible to treat patients with chemotherapy/radiotherapy during pregnancy when necessary, it's still better to avoid this situation, if possible."

Says Peccatori, "Discussion about effective contraception remains a high priority for oncologists dealing with young patients with cancer. The incidence of unplanned pregnancy during cancer treatment probably remains a rare event. Nonetheless, the high emotional impact of an unplanned pregnancy and the possible maternal consequences in terms of treatment modification should prompt more effective interventions in this field."

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