

## **Chemotherapy: a risk ignored by nursing staff**



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With the constant increase in the number of people affected by cancer – according to the WHO, there will be a 70% increase in the number of new cases over the next two decades – nursing staff are required to treat a growing number of cancer patients, notably with chemotherapy. This type of treatment uses medicines that prevent the rapid growth and division of cancerous cells.

These medicines, known as cytotoxic or anti-neoplastic agents, also damage healthy cells and therefore pose a serious health risk to the people who prepare them (dispensers and pharmacists), transport them (logistical support staff), administer them to patients (nurses and doctors), carry out certain cleaning duties\* and dispose of any waste (orderlies, cleaning staff).

Anti-cancer drugs can irritate skin, eyes and mucous membranes, and cause nausea, vomiting, diarrhoea, dizziness, hair loss, etc.

They have serious effects on the health of foetuses, including miscarriage, congenital defects and low birth weight. As a result, pregnant workers or those trying to conceive must not carry out any tasks that involve handling anti-cancer drugs.

In addition to these proven reprotoxic and teratogenic effects, many medicines currently used in chemotherapy are recognised as being carcinogenic or probably carcinogenic

to humans by the International Agency for Research on Cancer. A notable example is cyclophosphamide, which is used to treat numerous cancers (breast cancer, ovarian cancer, leukaemia, lung cancer, etc.)

The development of chemotherapies has been accompanied by increasingly strict risk prevention measures. For example, cytotoxics are prepared in a specific room with air exchange and in a vertical laminar flow hood or isolator (see photo).

Staff administering cytotoxics to patients are required to wear personal protective equipment (mask, gown, double gloves, cap, protective glasses, etc.).

However, according to the authors of a study carried out among Île-de-France hospital staff, 'these rules are not always followed because of a lack of awareness of the risks (especially from excreta and waste), inadequate structures or equipment, and staff being used to "invisible and contradictory" dangers from drugs'.

It is almost 10 years since that study was published and awareness has not always increased, as can be seen from the recent alert issued by the National Institute for Occupational Safety and Health (NIOSH) in the United States.

'Chemotherapy drugs save lives of cancer patients but also can result in adverse health outcomes in workers who are exposed to these drugs, including cancer, reproductive problems and organ damage when recommended safe handling guidelines are not followed', said John Howard, NIOSH Director, in October when the report was presented.

NIOSH surveyed more than 2 000 healthcare workers involved in the administration of antineoplastic drugs. The results show that many of them underestimate the risks involved in handling these drugs and neglect to follow the recommended safety measures: 80% do not always wear two pairs of chemotherapy gloves while 15% do not wear any at all. Other figures stand out, too: 42% do not systematically wear non-absorbent gowns and 12% take home potentially contaminated work clothing.

Since the beginning of the 1980s, many studies have sought to identify traces of anti-cancer drugs in the urine and blood of healthcare professionals\*\*. A recent Canadian study detected cyclophosphamide in more than half

(55%) of the urine samples of 201 healthcare professionals.

What is even more worrying is that since 2000 a dozen studies have shown that hospital staff in contact with anti-cancer drugs have a higher risk of genetic alterations than the general population.

'Handling antineoplastic drugs, even if under safety controlled conditions, represents a considerable genotoxic risk for healthy subjects occupationally exposed to these chemicals', say the authors of a study recently carried out among nursing staff in five Italian hospitals.

Several of these studies have shown that nurses are more at risk than their pharmacist colleagues who prepare the medicines. According to the scientists, this is because the conditions in which the drugs are prepared are safer and better controlled. That is a worrying observation at a time when it is becoming more and more common for patients to have chemotherapy treatment at home.

\* For example, those who handle laundry potentially contaminated by the biological fluids of a patient who received cytotoxic drugs in the previous 48 hours.

\*\* The NIOSH list contains around 200 references: [www.cdc.gov/niosh/topics/antineoplastic/monitoring.html](http://www.cdc.gov/niosh/topics/antineoplastic/monitoring.html).

### More information

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