THE CYTOCARE ROBOT IN RECONSTITUTION OF CYTOTOXICS – A WAY TO REDUCE CONTAMINATION?

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Objectives

The safety for the hospital pharmacy personnel reconstituting cytotoxics has for many years been an area of concern and research. Personnel are known to be exposed to cytotoxics, when a manual method of preparation is used. Automated preparation is claimed to minimize the exposure.

To investigate this, the concentration of cyclophosphamide (CP) in the preparation cabinet of the CytoCare Robot (www.safechemo.eu) and on the prepared doses were measured.

Methods

The experiment was carried out at 2 pilots in the SafeChemo project: Copenhagen and Bolzano.

The swab test was carried out in 3 cycles consisting of 4 preparations with 0,9% Sodium Chloride and 4 preparations with 900mg CP.

400cm^2 of the bottom of the preparation chamber was swabbed after each cycle. The bags with CP were swabbed just after the preparation finished.

All the samples were **analysed by LC-MS-MS** with a limit of detection of 6 x 10^{-14} g/cm^2 surface.

(Hedmar M. Et al.,2004. J.Environ.Monit.6,979-984)

Results

	Cyclophosphamide (pg/cm^2) LOD (Limit of detection) = 0,06pg/cm^2															
Sample / Pilot site	Before cycle 1	Bag swab 1	Bag swab 2	Bag swab 3	Bag swab 4	After cycle 1	Bag swab 5	Bag swab 6	Bag swab 7	Bag swab 8	After cycle 2	Bag swab 9	Bag swab 10	Bag swab 11	Bag swab 12	After cycle 3
Pilot 1	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD
Pilot 1	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD
Pilot 2	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD

Data from manual compounding: 500.000pg/cm^2

Conclusion

• Data on cytotoxic contamination of containers are available in the relevant literature showing very varying results but often in the microgram level. Data from F. Schindler and col., presented as poster at the 13. EAHP Congress showed contamination in the range of 1 µl per container which in our case is equivalent to approx. 500000 pg/cm^2.

• Compared to the manual process the CytoCare robot reduces the spread of drugs and thereby the risk of operator exposure by a factor 10^6.

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