

ANALYSIS OF CHEMICAL CONTAMINATION BY HAZARDOUS DRUGS WITH SEMIQUANTITATIVE SYSTEM IN A TERTIARY HOSPITAL

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Background and Importance

- The presence of contamination in the healthcare work environment by cytostatics has been found in multiple studies
- Recent guidelines recommend surface monitoring for risk assessment of healthcare professionals' exposure.
- The availability of detection techniques is critical to successfully carry out this type of monitoring.



Aim and Objectives

- Main objective was to determine the existence of hazardous drugs on the working surfaces in a hospital using a semi-quantitative device.
- Secondary objectives was to study the possible reasons for their detection and to evaluate the suitability of the detection technique used.

Materials and Methods

- A prospective, observational and cross-sectional study was carried out in a tertiary hospital (August and September 2020).
- The presence or absence of methotrexate, doxorubicin and cyclophosphamide was analyzed.
- A fast-reading instrument based on thin-layer immunochromatography technology with semi-quantitative determination was used.
- Detection threshold of 0.1ng/cm² for methotrexate and doxorubicin and 0.5ng/cm² for cyclophosphamide (sensitivity/specificity: 95%).

TOTAL

251 samples → 13.1% +

METHOTREXATE

- 10 clinical units
- 80 locations
- 36.3% positives

DOXORUBICIN

- 13 clinical units
- 89 locations
- 0% positives

CYCLOPHOSPHAMIDE

- 11 clinical units
- 82 locations
- 4.9% positives

Results

Location	Methotrexate		Doxorubicin		Cyclophosphamide		Totals	
	Number of positives/number of samples	%	Number of positives/number of samples	%	Number of positives/number of samples	%	Number of positives/number of samples	%
Adult Oncology Day Hospital	0/9	0	0/9	0	0/9	0	0/27	0
Adult Miscellaneous and Haematology Day Hospital	1/9	11.1	0/9	0	0/9	0	1/27	3.7
Paediatric Day Hospital	0/8	0	0/8	0	0/8	0	0/24	0
Clinical Research Unit	0/0	0	0/5	0	0/5	0	0/10	0
Urology Outpatient Clinic	0/0	0	0/3	0	0/0	0	0/3	0
Vascular Radiology	0/0	0	0/4	0	0/0	0	0/4	0
Urology Admission Unit	0/0	0	0/4	0	1/4	25	1/8	12.5
Adult Oncology Admission Unit	3/5	60	0/5	0	0/5	0	3/15	20
Adult Haematology	4/5	80	0/5	0	0/5	0	4/15	26.7
Paediatric Oncology	6/7	85.7	0/7	0	0/7	0	6/21	28.6
Paediatric Transplant Admission Unit	6/7	85.7	0/7	0	0/7	0	6/21	28.6
Intensive Care Unit	2/4	50	0/4	0	0/4	0	2/12	16.7
Obstetrics Outpatient Clinic	0/4	0	0/0	0	0/0	0	0/4	0
Pharmacy Service	3/18	16.7	0/15	0	3/15	20	6/48	12.5
Treatment Dispensing Cart	4/4	100	0/4	0	0/4	0	4/12	33.3

Conclusion and Relevance

- Mapping the presence of hazardous drugs in hospital has allowed to evaluate the effectiveness of controls established to minimize the exposure of healthcare professionals to hazardous drugs.
- The speed in obtaining results has enabled immediate corrective actions in cases where contaminated surfaces were detected.