CYCLOPHOSPHAMIDE SURFACE CONTAMINATION IN A ROBOTIC CHEMOTHERAPY COMPOUNDING PROCESS

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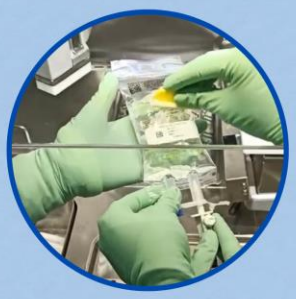

BACKGROUND AND IMPORTANCE

There is a wide consensus about the risks associated to the occupational exposure to hazardous drugs, but recent studies have shown that there is still surface contamination in pharmacies preparing antineoplastic drugs. The main reason for the implementation of robotic compounding systems is to improve safety; for the patient and for health care workers, avoiding repetitive strain injuries and hazardous drugs exposure.

MATERIALS AND METHODS

The sampling areas were selected after being identified as the highest risk of personal contamination in a risk assessment.

Wipe samples were taken from vials, infusion bags, gloves, and different locations of the robotic system.

Surface monitoring was performed using a semi-quantitative device based on thin-layer immunochromatography.

The sampling was performed at the end of the workday over several days before cleaning process to identify the highest potential degree of contamination to which healthcare workers could be exposed.

RESULTS

WHERE?	CYCLOPHOSPHAMIDE Over 0.5ng/cm2
VIALS (n=15)	NEGATIVE
BAGS (n=5)	NEGATIVE
GLOVES (n=10)	NEGATIVE
ROBOT COMPOUNDING AREA (n=5)	NEGATIVE

Cyclophosphamide compounding were perform during the study days and several months before. There wasn´t any cyclophosphamide spill in the three months prior to the study.

External contamination were measured on 15 vials and 5 bags of cyclophosphamide and on 10 gloves and 5 robot areas after cyclophosphamide compounding during 5 non-consecutive days.

There were not Cyclophosphamide contamination over the detection limit of 0.5ng/cm2 in none of the samples from the robot; vial, gloves and bags samples were also negative.

AIM AND OBJECTIVES

The aim of this study was to evaluate cyclophosphamide exposure of pharmacy nurses during the robotic chemotherapy compounding process.

CONCLUSION AND RELEVANCE

Robotic chemotherapy compounding enables cyclophosphamide preparation with low levels of personal exposure.

Cyclophosphamide is a good standard for measuring hazardous drugs contamination because its preparation method, frequency of use and the availability of occupational exposure studies.

To our best knowledge, this is the first study in robotic hazardous drug contamination using a semi quantitative method. Despite this technology does not allow precise quantification of the amount of HD present, the use of semi-quantitative methods could facilitate its widespread determination due to a lower cost and immediacy of results, allowing the implementation of corrective measures.

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REFERENCES

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