

5-Fluorouracil, Doxorubicin and Etoposide Contamination of Surface Water

In the last few years, scientists have developed technology to accurately test for cytotoxic chemotherapy in surface water around the world. Drugs such as 5-Fluorouracil, doxorubicin and etoposide are poorly removed by wastewater treatment. The result is surface waters are being contaminated with these dangerous chemicals.

Drug	City	Source	Protocol	Conc in Wastewater	Hospital Use	Reference	
5-Fluorouracil (5-FU)	Vienna, Austria	Wastewater	Section of Oncology Ward	Outpatient*	<8.6 - 123.5 ug/L	1.8 - 6.1 gm administered/day	Mahnik et al. 2007
	Switzerland	Wastewater	Large Canton Hospital (1% of Swiss beds)	Outpatient	<5 - 27 ng/L	0 - 5 patients/day	Weissbrodt et al. 2009
	Paris, France	Wastewater	French Hospital	Outpatient	0.09 - 4 ug/L	12/14 samples tested	Mullott et al. 2009
	Beijing, China	Wastewater	21 Beijing Hospitals	Inpatient?	42 ng/L		Yin et al. 2010
Doxorubicin	Vienna, Austria	Wastewater	Section of Oncology Ward	Outpatient**	<0.26 - 1.35 ug/L	16.8 - 244 mg administered/day	Mahnik et al. 2007
	Beijing, China	Wastewater	21 Beijing Hospitals	Inpatient?	<LOD		Yin et al. 2010
Etoposide	Beijing, China	Wastewater	21 Beijing Hospitals	Inpatient?	42 ng/L		Yin et al. 2010

* Patients treated in outpatient unit and immediately sent home

** Slow drug elimination from tissues causes little excretion during patients hospital stay.

**Most drug elimination would occur at home.

References

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