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DRUG SAVINGS REALISED BY USE OF A RIGHT CLOSED SYSTEM TRANSFER DEVICE IN THE PREPARATION OF ANTINEOPLASTIC DRUGS

A Ozyaman, E Birli, MA Sarikaya, Izmir Kent Hospital, Hospital Pharmacy, Izmir, Turkey
anil.ozyaman@kenthospital.com

Background

Drug costs constitute a major part of health expenditure in Turkey. Among drug classes, antineoplastics are the most expensive. Another attempt at cost savings in antineoplastic drugs could be achieved by preparing the drugs without dose rounding without compromising either patient or healthcare worker safety. Reducing drug waste could also result in decreased costs for waste.Previous studies demonstrated that the PhaSeal Closed System Transfer Device maintains drug sterility for up to 7 days and suggested that the remaining part of drugs in single use vials could be stored for up to 7 days or during their physicochemical stability period, if shorter.

Purpose

To determine the rates of drug savings that could be achieved by storing the remaining part of drugs in the vial with and without PhaSeal.

Material and methods

Chemotherapy drug preparations are performed in separated units within the hospital pharmacy, inside a class II B2 type biological safety cabinet in accordance with aseptic technique procedures.
This study included 16 different glass vials. A 3 month period was determined when the devices were not being used (July, August, September 2014–period A). Within period A, leftover drugs were reused during the day and discarded at the end of the day. Similarly, a 3 month period was determined when the devices were being used (July, August, September 2015–period B). Within period B, maximum stability period was limited to 7 days. Physicochemical stability information of related drugs was searched for in reference sources.

For both cases, the amount of saved doses within the 3 month period was proportioned to amount of doses that were supposed to be used in case of instant discard and no drug savings. Cost savings were calculated using price per mg, total amount of prepared doses in mg and proportion of drug saving. The study evaluated only impact on drug savings.

Conclusion

In 11 out of 16 drugs, the rate of drug saving was higher in period B and the percentage of drug savings increased from 7.48% to 17.57% in period B. It was concluded that, in addition reducing exposure to hazardous drugs, PhaSeal could also contribute to drug savings.

Results

Results are shown in figure 1.

Drug	Proportion (Period A)	Drug Savings (Period A) (mg)	Cost Savings (Period A) (€)	Total Drug Cost (Period A) (€)	Proportion (Period B)	Drug Savings (Period B) (mg)	Cost Savings (Period B) (€)	Total Drug Cost (Period B) (€)
Fluorouracil	7,08%	42500	€ 121,47	€ 1.715,68	3,90%	12000	€ 32,52	€ 833,75
Bevacizumab	5,34%	1800	€ 3.734,59	€ 69.936,21	7,41%	2000	€ 4.148,90	€ 55.990,60
Doxorubicin hydrochloride	1,26%	130	€ 38,25	€ 3.035,33	12,50%	700	€ 122,52	€ 980,18
Docetaxel	1,89%	600	€ 790,74	€ 41.838,20	1,87%	340	€ 448,09	€ 23.961,88
Epirubicin hydrochloride	3,79%	600	€ 237,29	€ 6.260,96	27,67%	2850	€ 726,47	€ 2.625,49
Etoposide	5,12%	900	€ 49,91	€ 974,74	4,41%	300	€ 16,64	€ 377,22
Irinotecan	0,79%	100	€ 39,68	€ 5.022,46	21,96%	2460	€ 1.055,22	€ 4.805,20
Calcium folinate	1,17%	600	€ 21,95	€ 1.875,93	2,20%	1300	€ 47,72	€ 2.169,21
Carboplatin	8,12%	5700	€ 491,30	€ 6.050,53	3,66%	2100	€ 181,01	€ 4.945,53
Oxaliplatin	4,06%	700	€ 352,75	€ 8.688,54	6,85%	850	€ 480,76	€ 7.018,41
Paclitaxel	0,78%	240	€ 129,55	€ 16.608,77	2,89%	750	€ 404,84	€ 14.008,26
Cetuximab	3,09%	300	€ 353,11	€ 11.427,50	5,88%	100	€ 117,70	€ 2.001,76
Cyclophosphamide	5,16%	12000	€ 161,11	€ 3.122,28	11,09%	23500	€ 315,51	€ 2.844,96
Cisplatin	6,25%	600	€ 76,18	€ 1.218,89	3,73%	300	€ 38,09	€ 1.021,19
Cytarabine	17,50%	14000	€ 245,68	€ 1.403,87	53,33%	16000	€ 308,95	€ 579,33
Trastuzumab	10,72%	8250	€ 21.758,53	€ 202.971,38	33,98%	10500	€ 27.692,68	€ 81.496,99
		Total:	**€ 28.602,09**	**€ 382.151,26**		Total:	€ 36.137,62	€ 205.659,95
			7,48%				**17,57%**	

Total Drug Cost (Period A):	€ 382.151,26	Total Drug Cost (Period B):	€ 205.659,95
Cost-Savings (€) (Period A):	€ 28.602,09	Cost-Savings (€) (Period B):	€ 36.137,62
Percentage of Cost savings (Period A):	**7,48%**	Percentage of Cost savings (Period B):	**17,57%**

Conflict of Interest
No conflict of interest

References

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