

CENTRALIZATION AND TECHNOLOGY SUPPORT THE HOSPITAL PHARMACIST IN IMPROVING SAFETY, ACCURACY AND ECONOMY IN THE MANAGEMENT OF MONOCLONAL ANTIBODIES

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BACKGROUND

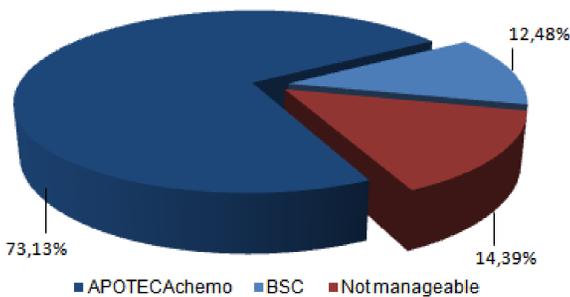
Antineoplastic drugs are considered 'high-risk drugs' due to the increased frequency of human technical errors in their preparation. It is essential for pharmacists to be responsible for setting up, centralizing and managing cytotoxic drugs (CDs). To this end, the Division of Anticancer Drugs of L'Aquila (Italy) acquired on June 2012 a Robotic System, APOTECACHemo, the first worldwide system for chemotherapy compounding in a controlled atmosphere.



PURPOSE

To analyse the impact of centralizing and automating CD preparation for all the Departments in the Hospital of L'Aquila, to avoid any possibility of human error and to optimize the use of the remainder of CDs.

MATERIAL AND METHOD



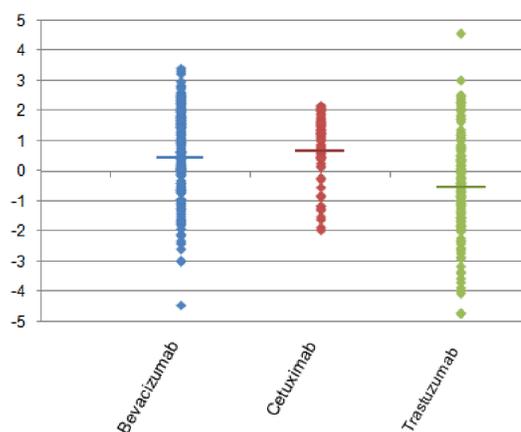
Percentage distribution of preparations compounded in APOTECACHemo and BSC in the period June 2012 – February 2013. In red, preparations not manageable in automatic system.



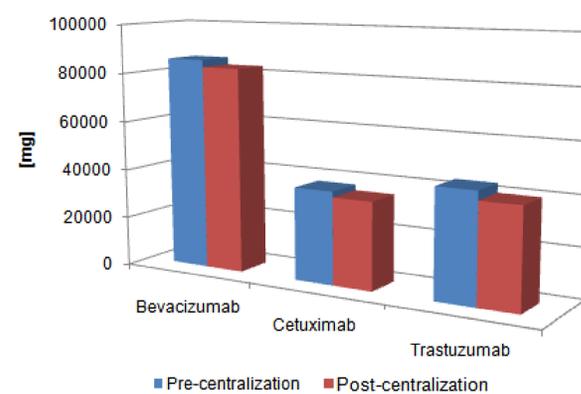
Three high cost monoclonal antibodies (bevacizumab, cetuximab and trastuzumab) were chosen for analysis in this study during the period June 2012 - September 2012. The criteria for product suitability were evaluated by analysing the APOTECACHemo database in which all stages of the production process are recorded (picture of the bottle used, weight, and dose accuracy). The cost analysis was evaluated by calculating the daily amounts left over of the three drugs that were previously discarded and are now fully re-used.

RESULTS

For the four months analyzed, the average error was for 168 preparations of bevacizumab +0.45% (DS = 1.85), for 67 preparations of cetuximab +0.71% (DS = 1.13) and for 152 preparations of trastuzumab -0.57% (DS = 1.8). In the period under review, 85.9 g of bevacizumab, 37.5 g of cetuximab and 43.8 g of trastuzumab were prepared using material that would previously have been discarded. This provided considerable saving for the three drugs (€29,893) which corresponds to approximately € 90,000 per year.

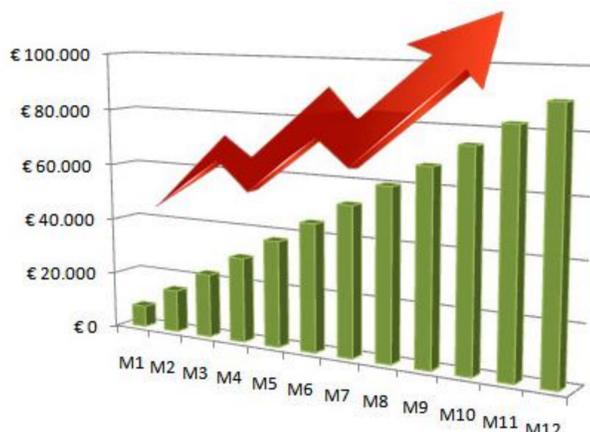


Distribution accuracy for preparations analyzed (June 2012- September 2012)



Drug dosage analyzed in pre-centralization and post-centralization period

CONCLUSION



→ **90,000 €**
Annual saving

The centralized system and the use of APOTECACHemo is successful both in terms of patient and operator safety. The patient safety is guaranteed thanks to the verification and traceability of each preparation step, along with the aseptic processing. The operator is protected with the confinement of the hazardous activities in a ISO 5 and negative-pressure environment. In addition, the automatic drug management introduces advantages in terms of cost benefit for the Hospital.