The complete automation as the new frontier of oncology drug compounding

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BACKGROUND AND PURPOSE

The pharmacy laboratory of oncology drugs compounding of the University Hospital of Ancona runs about 20,000 preparations per year. Thanks to the collaboration with Loccioni Group, the process of work automatization started in 2007 with the introduction of a first robot for chemotherapy compounding. The following years were devoted to develop and validate the system, increase the number of drugs handled and enlarge the productivity. At the end of 2009 a new generation of robotized system, APOTECAchemo, was introduced into the Pharmacy with the objective of setting the first totally automated laboratory by the end of 2010.

The robotized preparations have unique quality standards since those are compounded in aseptic condition and each one undergoes a quasi-quantitative controlled ministration phases.

MATERIAL AND METHOD

The 2007-2009 data are analysing by combining the APOTECAchemo database with the clinical database of the Pharmacy. Since 2010, the two database were merged into the same platform in order to make the data mining much simpler.

RESULTS

We starting with 5 active ingredients in September 2007 and now APOTECAchemo handles 56 oncology molecules, which correspond to more than 160 different vials. The production rate of the system passed from 3,400 in 2008 to 6,600 in 2009 and 16,300 in 2010. In the first 9 months of 2011 we already produced 14,200 units and we expect to overcome 19,000 preparations delivered by the end of 2011. The percentage of work cover by automation was around 80% in 2010 and about 95% at the moment (Oct 11).

CONCLUSION

The automated production of the cancer therapies represents a big leap forward in the safety of patient and operator, thanks to the verification and traceability of each preparations, and to the confinement of the hazardous activities. We are confident this technology is going to represent the standard for the oncology pharmacy in the near future.