Cost reduction as a result of bortezomib vial sharing in the University Hospital Center 'Mother Theresa' Tirana

The costs associated with current and emerging therapies, as well as supportive care, are significant and pose a tremendous financial burden to both patients and healthcare system.¹ This can be an obstacle for the treatment of patients and sometimes the decision related to the treatment of choice is made taking in consideration primarily the therapy costs and not the efficacy and clinical outcomes of the patients, especially in poor countries and low/middle-income countries, where the healthcare system financing is low and the budget allocated for drugs is not sufficient. The waste of drugs caused from the vial size also affects the financial costs of the treatment. Single-size vials of chemotherapy drugs may be an undernoticed source of waste and increase in treatment costs. An effective method to reduce the drug waste is the possibility to choose between vial sizes depending on the

patient's need. Bortezomib (Velcade, Janssen-Cilag, Beerse, Antwerp, Belgium) is a drug frequently used in multiple myeloma treatment that is available in Albania, USA, Brazil and in many other countries only as a 3.5 mg vial. This presentation dose is higher than the average dose commonly prescribed and due to the lack of preservatives in the phial, it is mandatory that the drug be administered within a couple of hours from the preparation.² As a result of the above, we decided to make a study in order to evaluate how we can reduce costs and minimise drug waste simply using vial sharing of bortezomib. We decided to conduct a retrospective analysis of the use of bortezomib in patients with multiple myeloma in the Hematology Department of the University Hospital Center 'Mother Theresa' Tirana, using vial sharing technique to minimise wastage, with focus on cost saving. The study has been conducted in the period 1 January 2015 to 30 June 2015 before vial sharing and 1 January 2016 to 30 June 2016 after vial sharing, thereby enabling us to share vial contents between patients. We compared the cost reduction in euro as shown in [table 1](#), in order to determine the cost reduction and cost efficacy of vial sharing.

Vial sharing of bortezomib between patients combining multiple infusions on the same day has improved patient experience by increasing access to therapy and reducing waiting times for treatment. Drug costs were reduced by 25.96% resulting in significant savings and more patients treated with the same amount of vials of bortezomib used. The average required dose of bortezomib has been calculated to be 2.59 mg based on the drug's dose of 1.3 mg/m² and the average weight of the treated patients. As a result of cost reduction due to vial sharing we administered 62 individualised preparations of bortezomib more in 1 January 2016 to 30 June 2016 for the same budget allocated. Decreasing waste is an attractive cost-cutting strategy because it neither

Table 1 Calculations of costs and waste of bortezomib before and after vial sharing

Period of time	Number of patients treated with bortezomib	Number of bortezomib vials used	Cost of treatment for one patient/cycle (€)	Average dose of bortezomib for one patient/cycle (mg)	Waste from current phial size (mg)	Waste in phials of 3.5 mg bortezomib	Waste in €
1 January 2015 to 30 June 2015	179	179	873.36	2.59	162.89	46.54	40 646.17
1 January 2016 to 30 June 2016	258	191	646.55	2.59	10.2	2.91	2541.47

limits specific drug use nor affects quality of care.³ We believe that this discussion is even more important in poor countries and low/middle-income countries such as Albania, which are plagued by a perennially insufficient healthcare budget.

Florjana Rustemi,¹ Ledjan Malaj,² Ela Hoti,² Enida Balla³

¹Department of Pharmacy, Albanian University, Tirana, Albania

²Department of Pharmacy, University of Medicine, Tirana, Albania

³Department of Pharmacy, University Hospital Center 'Mother Theresa' Tirana, Tirana, Albania

Correspondence to PhD Student Florjana Rustemi, Department of Pharmacy, Albanian University, Tirana 1005, Albania; florjanarustemi@gmail.com

Contributors FR, the corresponding author, designed data collection tools, monitored data collection for the whole study, wrote the paper, analysed the data, and drafted and revised the paper. She is the guarantor. EB collected the data and revised the paper. LM and EH analysed the data and revised the paper.

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