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Pharmacoeconomic considerations on treatment of multiple sclerosis: importance of computerisation and role of the daily dose received

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Objectives

The aim of this study was to test a specific database, FarmaDDSS, made to follow patients through the hospital pharmacy where they received the prescribed dose. This approach allowed to calculate important parameters of pharmacoutilization such as Received Daily Dose (RDD), Prescribed Daily Dose (PDD).

Methods

In order to monitor prescriptions of drugs, a specific database, named "FarmaDDSS" was created to study parameters of pharmacoutilization such as RDD, PDD, appropriateness prescriptive, patient compliance and the physician compliance. (fig. 1)
Economic considerations were made depending on the dose received each day of study drugs. The following data were loaded in the database in use at the pharmacy, FarmaDDSS: patient demographics, drug used, dosage and date of delivery of the drug.

$$\frac{RDD}{DDD} = \frac{RDD}{PDD} \times \frac{PDD}{DDD}$$

Appropriateness of use | Adherence | Physician compliance

Results

There were 117 patients in four years of study. RDD and PDD and related costs were calculated for each drug. The value of RDD, calculated as mean of four years, between 2007 and 2010, for Avonex, Betaferon, Copaxone, Extavia, Rebif22 and 44 was 4,7, 3,9, 19,7, 3,9, 9,1 and 18,8, respectively. (Tab. 1) Patient adherence approaching value 1, thus showing a good clinical profile for all drugs as well as appropriateness of use and physician compliance except for REBIF (fig. 2). Calculating the cost per RDD, the most expensive drug seems to be the Rebif® 44 with a cost of € 38,00 per day (fig. 3).

	Avonex ®(mcg)					Betaferon®(MU)					Copaxone® (mg)				
	2007	2008	2009	2010	Mean	2007	2008	2009	2010	Mean	2007	2008	2009	2010	Mean
RDD	4,2	4,7	5	4,7	**4,7**	4,1	3,7	3,7	4,2	**3,9**	19,3	20,5	20,1	19,1	**19,7**
DDD	4,3	4,3	4,3	4,3	**4,3**	4	4	4	4	**4**	20,0	20,0	20,0	20,0	**20,0**
PDD	4,3	4,3	4,3	4,3	**4,3**	4	4	4	4	**4**	20,0	20,0	20,0	20,0	**20,0**
RDD/DDD	0,98	1,09	1,16	1,09	**1,09**	1,03	0,93	0,93	1,05	**0,98**	0,97	1,01	1,01	0,96	**0,99**
RDD/PDD	0,98	1,09	1,16	1,09	**1,09**	1,03	0,93	0,93	1,05	**0,98**	0,97	1,01	1,01	0,96	**0,99**
PDD/DDD	1	1	1	1	**1**	1	1	1	1	**1**	1	1	1	1	**1**
	Extavia® (MU)					**Rebif ®22 (mcg)**					**Rebif ®44 (mcg)**				
	2007	2008	2009	2010	Mean	2007	2008	2009	2010	Mean	2007	2008	2009	2010	Mean
RDD	n.d.	n.d.	4,0	3,9	**3,9**	10,1	9,3	9,5	7,3	**9,1**	19,1	20,3	18,0	18,2	**18,8**
DDD	n.d.	n.d.	4,0	4,0	**4,0**	4,3	4,3	4,3	4,3	**4,3**	4,3	4,3	4,3	4,3	**4,3**
PDD	n.d.	n.d.	4,0	4,0	**4,0**	9,4	9,4	9,4	9,4	**9,4**	18,8	18,8	18,8	18,8	**18,8**
RDD/DDD	n.d.	n.d.	1	0,98	**0,98**	2,35	2,16	2,21	1,7	**2,12**	4,45	4,73	4,2	4,24	**4,37**
RDD/PDD	n.d.	n.d.	1	0,98	**0,98**	1,07	0,99	1,01	0,78	**0,97**	1,02	1,08	0,96	0,97	**1**
PDD/DDD	n.d.	n.d.	1	1	**1**	2,19	2,19	2,19	2,19	**2,20**	4,37	4,37	4,37	4,37	**4,4**

Tab. 1 RDD, DDD, PDD values from 2007 to 2010

Conclusions

It's very important to use the RDD as parameter of pharmacoeconomic valuation because it represents a more reliable indicator compared to DDD. In this case the informatization plays an important role to follow the patient specially in this type of pathology.

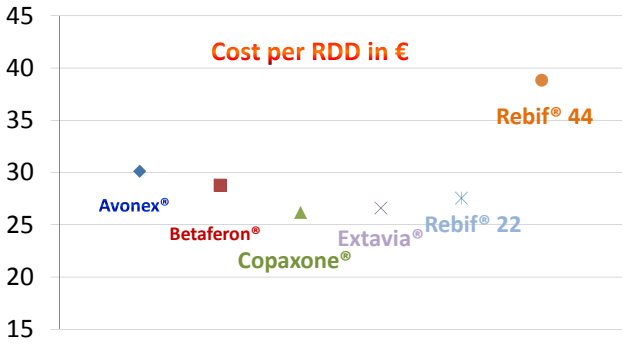

Fig.3 Cost per RDD in €

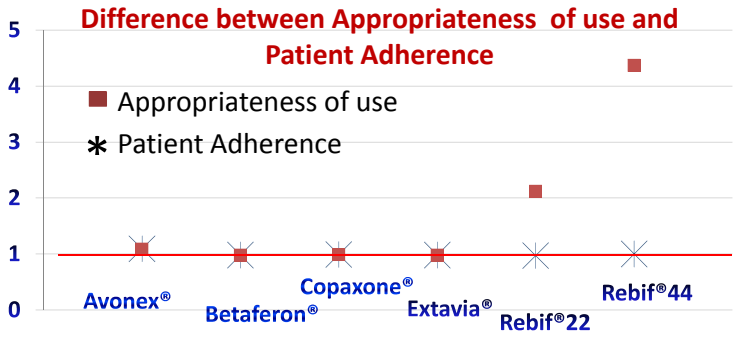

Fig.2 Difference between Appropriateness of use and Patient Adherence