boceprevir have recently been approved in Europe in combination with pegINF and RBV for the treatment of patients with genotype 1 HCV who have not been treated previously or when standard treatment has failed. They are serine protease inhibitors and belong to a new class of drugs: direct acting antivirals (DDAs).

Purpose To evaluate the pharmacoeconomic aspects of triple therapy with RBV, pegIFN and telaprevir or boceprevir, as reported in the literature.

Materials and Methods Cut-off guidelines have been established to quantify the suitability of new treatments based on the cost of treatment per quality-adjusted life year (QALY). The impact of using the new drugs was assessed on a hypothetical group of 14,000 patients infected with HCV (genotype 1). Unfortunately the price of the new drugs has not yet been negotiated in Italy; this represents a limit on the evaluation. The results are expressed in terms of Incremental cost-effectiveness ratios (ICERs).

Results The cost was estimated at €31,000/patient, 236.5 M€ over a period of 30 years. The ICER calculated to 20 years was €29.485/QALY while at 30 years was €18.291/QALY. Investment in these new molecules is favourable from a time horizon of 20 years.

Conclusions Boceprevir and telaprevir with standard treatment are cost effective considering the lifetime incidence of liver complications, quality-adjusted life years and the incremental cost-effectiveness ratio. The cost effectiveness depends on the adherence to the treatment; it could be improved if the diagnostic and therapeutic pathways were optimised.

No conflict of interest.

DGI-054 POST-PANDEMIC INFLUENZA A (H1N1) INFECTION IN CRITICALLY ILL PATIENTS PREVIOUSLY VACCINATED

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[1]L Canadell Vilarrasa, [2]AH Rodriguez Oviedo, [2]E Diaz Santos. *[1]Hospital Universitari Joan XXIII de Tarragona, Pharmacy, Tarragona, Spain; [2]Hospital Universitari Joan XXIII de Tarragona, ICU, Tarragona, Spain*

Background The A H1N1 2009 virus caused a worldwide pandemic during 2009. Vaccination of high-risk individuals was one of the recommendations of the World Health Organization before the post-pandemic period. Since this period, influenza activity has again associated with A H1N1 virus in Spain.

1059 cases of severe flu were hospitalised during the post-pandemic period in Spain and 41% of them were admitted to the ICU. The status of influenza vaccination was determined in 92% of the ICU patients.

Purpose To compare differential characteristics in morbidity, mortality and clinical manifestations of vaccinated patients who were admitted to Spanish ICUs during the flu season 2010–11 versus unvaccinated patients.

Materials and Methods Prospective, observational and multicentre study performed in 148 ICUs. Data were recorded in the GTEI/SEMICYUC registry. Adult patients with influenza A (H1N1) confirmed by rt-PCR were included in the analysis. Database records discriminated between having or not having been vaccinated.

Results 397 patients were admitted to Spanish ICUs during the post-pandemic period 2010/11 and supplied information about previous vaccination. A total of 22 (5.8%) patients had previously been vaccinated.

Vaccinated patients had a higher percentage of comorbidities compared to the other patients, (95.5% vs. 74.1%; p = 0.021). The mean number of comorbidities was also higher in vaccinated patients [1.91 (1.41) vs. 1.18 (0.99); p = 0.026].

Vaccinated patients showed higher rate of overall pneumonia but not bacterial coinfection. They received empiric antiviral treatment in a similar percentage and dosage, but they were treated for less time [6.9 (4.07) days vs. 8.99 (3.76) days; p = 0.003]. There was 2 days of delay in the initiation of empiric antiviral treatment in vaccinated patients (7.64 vs. 5.59 days), although it was not statistically significant. Data also showed that a greater percentage of vaccinated patients were treated with zanamivir compared to the rest of the group (22.7% vs. 5.3% p = 0.008). Vaccinated patients did not differ from the rest of the group in time from onset of symptoms, days to hospital admission or time until diagnosis.

Conclusions Clinical presentation, management and antiviral treatment was different in patients who had been previously vaccinated against influenza A (H1N1) virus.

No conflict of interest.

DGI-055 PROTEASE INHIBITORS: NEW DRUGS FOR TREATMENT OF CHRONIC HEPATIS C

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M Pérez Abánades, C Martínez Nieto, E Alañón Plaza, A Aranguren Oyarzábal, E Deben Tiscar, E Ramírez Herráiz, T Gallego Aranda, A Ibañez Zurriaga, A Morell Baladrón. *Hospital universitario la Princesa, Servicio de Farmacia, Madrid, Spain*

Background The protease inhibitors boceprevir and telaprevir are indicated for treatment of chronic hepatitis C (CHC) genotype 1 in combination with peginterferon-alfa and ribavirin. These drugs increase efficacy and adverse effects.

Purpose To study the effectiveness and safety of boceprevir and telaprevir for treatment of CHC.

Materials and Methods Retrospective observational study including all patients who started treatment with telaprevir or boceprevir for treatment of CHC from January to September 2012.

Collected data: age, sex, type of patient (treatment-naive, recurrent or non-responder), liver fibrosis, HIV coinfection, viral loads at weeks 0, 4, 8, 12, 24 to evaluate efficacy and adverse effects and supportive treatment to evaluate safety.

Results We included 51 patients, 35 (70%) men and 15 (30%) women, with a mean age of 51 years. 5 patients were co-infected with HIV (off-label use).

Abstract DGI-055 Table 1 Baseline characteristics

	Telaprevir	Boceprevir
Patients	29 (58%)	21 (42%)
Type of patient		
treatment-naive	5 (17.24%)	4 (19.05%)
recurrent	4 (13.79%)	10 (47.62%)
non-responder	20 (68.97%)	7 (33.33%)
Liver fibrosis		
0–1	6 (20.69%)	1 (4.76%)
2	6 (20.69%)	2 (9.52%)
3–4	17 (58.62%)	19 (90.48%)

Abstract DGI-055 Table 2 Efficacy and safety

	Telaprevir	Boceprevir
Negative viral loads at week		
4	15/23 (65.22%)	7/15 (46.67%)
8	18/21 (85.71%)	8/14 (57.14%)
12	19/19 (100%)	4/5 (80.00%)
24	8/8 (100%)	1/1 (100%)
Anaemia		
Reduced dose of ribavirin	6 (20.69%)	6 (28.57%)
Treatment with erythropoiesis-stimulating agent	2 (6.90%)	1 (4.76%)
Discontinued	1 (3.45%)	1 (4.76%)
Neutropenia		
Reduction dose of peginterferon-alfa	2 (6.90%)	4 (19.05%)
Treatment with granulocyte colony-stimulating factor (G-CSF)	1 (3.45%)	4 (19.05%)
Rash		
Discontinued	1 (3.45%)	0 (0%)

Conclusions Most patients had grade 3–4 liver fibrosis. Most patients were recurrent or non-responders to previous treatment. Telaprevir was the most used protease inhibitor.

Patients using telaprevir got negative viral loads before patients using boceprevir.

A high percentage of patients using boceprevir required the dose of peginterferon-alfa to be reduced and treatment with G-CSF due to neutropenia.

No conflict of interest.

DGI-056 REDUCED DELAY IN THE ADMINISTRATION OF CHEMOTHERAPY AFTER OPTIMISING THE PROCESS OF PREPARATION/DISPENSING OF PARENTERAL ANTINEOPLASTICS

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C Borrell, MJ Esteban, J Ruiz, JE Megías, E López, [1]JL Poveda. *Hospital Universitario La Fe, Pharmacy, Valencia, Spain*

Background Separation between the Chemotherapy Unit and the Day Hospital Unit makes rapid treatment of onco-hematologic patients difficult.

Purpose To optimise the sequence of dispensing parenteral antineoplastic mixtures when there is relevant physical separation between the Chemotherapy Unit (CU) of the Pharmacy Department and the Day Hospital Unit (DHU) where these treatments are administered to onco-hematologic patients.

Materials and Methods We reviewed stability data from mixtures of antineoplastics, each from Pharmacotherapeutic Schemes (PS) and updated the protocol in our Oncofarm programme. To plan the appointments of onco-haematological patients in the DHU, patients were grouped into three types depending on the stability of the mixtures and the total time of administration: type I [analysis (A), cheque (V) administration and chemotherapy (CT) on the same day], type II (A: one day, with V and CT the next day) and type III (A and V one day, with CT the next day). To evaluate the efficiency of the process, the compliance productivity indicator 'lag time' between confirming the treatments prescribed by doctors and the start of their administration in DHU was calculated.

Results With support from various literature sources, we reviewed the stability of 54 antineoplastic mixtures and updated the Oncofarm data. Of 482 PS analysed, 30% would be appropriate for type I patients, 2% for type II and 68% for type III. The new stability data allowed us to prepare a total of 28 new PS in the CU the day before their administration. To gauge productivity the 'lag time' was calculated for a period of three months for treatments prescribed electronically to 552 patients and the 1023 mixtures dispensed to DHU. The average delay was 2:23 (SD=0:37) hours, keeping the level of compliance at 100%.

Conclusions The reorganisation of the antineoplastic preparation process based on the updated stability data made it possible to dispense the mixtures of PS prescribed for type II and III patients at the best time. This ensured optimum services to health professionals and patient satisfaction.

No conflict of interest.

DGI-057 RELATIONSHIP BETWEEN IN-HOSPITAL USE OF ANTIPSEUDOMONAL AGENTS AND RESISTANCE TO CARBAPENEMS FOR PSEUDOMONAS AERUGINOSA IN A GENERAL HOSPITAL OVER A NINE-YEAR PERIOD

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M Saez-Villafañe, I Yañez-Gonzalez, E Gutierrez-Gutierrez, C Prieto-Fernandez, JJ Ortiz De Urbina, L Ortega-Valin, M Noguerol-Cal, C Rodriguez-Lage. *Complejo Asistencial De Leon, Pharmacy, Leon, Spain*

Background Antimicrobial resistance is frequently related to the high selective pressure of antimicrobials commonly used in hospitalised patients.

Purpose To analyse in-hospital consumption of antipseudomonal agents (AAC), trends and the relationship with increase in Pseudomonas aeruginosa (PA) resistant to imipenem or meropenem.

Materials and Methods Descriptive retrospective analysis (2002–2010) of the AAC in a 1,100-bed tertiary teaching hospital. Data on the use of antibiotics were obtained from the hospital pharmacy and expressed as defined daily doses per 100 bed-days (DDD/100 bed-days).

Resistance rates were obtained from Microbiology and expressed as percentage of total PA cultures resistant to imipenem or meropenem.

Pearson's correlation coefficient(r) was used to determinate the relationship between AAC and % PA resistant to imipenem or meropenem. Linear regression analysis was used to further analyse these relationships with $r \geq 0.7$

Results Antipseudomonal agents represented 20.44% of all antibiotics in 2002 and 28.86% in 2010.

The relationship was studied between each AAC (2002–2010) and %PA resistant to imipenem or meropenem, and a positive relationship ($r > 0.7$) was observed between the increase in P/T, MER, IMI and LEV consumption and increase in %PA resistant to meropenem. Linear regression analysis was used for these antibiotics. The strongest relationship was observed between levofloxacin and %PA resistant to meropenem ($r^2 = 0.7970$). Coefficients of determination (r^2) for P/T, IMI and MER were 0.6951, 0.5932 and 0.5313 respectively.

Conclusions During the period studied, the trend was for an overall increase in antibiotics consumption, in the use of antipseudomonal agents (principally piperacillin-tazobactam and levofloxacin), in the number of cases of PA and in resistances rates (mainly to meropenem).

Data suggest that increasing use of P/T, imipenem, meropenem and especially levofloxacin, means an increase in %*PA* resistant to meropenem.

Antibiotic consumption is important to explain trend in resistance rates, but other variables may also be involved, so we must to be prudent interpreting these types of studies. Despite the limits, more exhaustive studies may be done to determinate the relationship between antibiotics consumption and resistance rates.

Abstract DGI-057 Table 1

Antibiotics consumption (DDDs/100 bed-days)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Piperacillin-Tazobactam (P/T)	0.76	0.83	1.30	1.95	2.36	3.22	3.82	3.68	4.29
Ceftazidime	0.95	0.66	0.69	0.70	0.59	0.59	0.63	0.56	0.69
Cefepime	0.62	0.72	0.93	1.16	1.05	0.76	0.98	1.05	0.94
Meropenem (MER)	0.68	0.47	0.49	0.47	0.42	0.51	0.90	0.81	1.03
Imipenem (IMI)	1.14	0.99	1.18	0.94	0.86	1.39	1.30	1.43	1.43
Ciprofloxacin	6.25	5.31	5.07	5.73	5.67	6.14	6.02	5.91	5.98
Levofloxacin (LEV)	1.79	1.94	2.03	2.79	3.52	6.96	6.73	6.63	6.83
Overall antibiotics (ATC J01)	59.63	50.98	51.55	56.86	55.77	69.02	74.18	70.84	73.43
Number of cases of PA (N)	534	506	718	749	774	1126	1280	1250	Not available
%PA resistant to imipenem	12.90	14.70	15.60	15.60	11.70	14.10	14.70	11.40	14.20
%PA resistant to meropenem	7.40	6.70	6.50	7.70	6.30	11.30	12.70	9.30	11.40

No conflict of interest.