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there were recurrences, whether the CDI was resolved and whether the CDI was nosocomial/hospital or community acquired.

The techniques and diagnostic algorithm used for CDI in our hospital were chosen because of their high cost-effectiveness: detection of glutamate dehydrogenase antigen or *Clostridium difficile* and toxins by immunochromatography (ImmunoCard[®], C. difficile GDH, Meridian Bioscience[®] Inc., Cincinnati, OH, USA) in faeces and confirmation of CD toxin production (mainly *tcdB*) by molecular biology techniques (Illumigene[®], Grifols[®] PCR Lamp-Cincinnati, OH, USA, and subsequently real-time PCR DB MAX System, Becton-Dickinson, MD, USA).

Of all patients (No.=20), 10 (50%) were male and 10 (50%) female, with a mean age of 65. The distribution of tumour diseases is diverse. All patients were treated with oral metronidazole 500 mg/8 h. Of the 20 patients, 2 had recurring diarrhoea and were treated with oral vancomycin 125 mg/6 h for 10 days (evidence B-I). Of those two recurring cases, after a lack of response to the use of oral vancomycin, they were treated again with intravenous metronidazole 500 mg/8 h, obtaining a complete response and no diarrhoea.

From the analysis of the variables and clinical responses (Table 1) it is noteworthy that the use of metronidazole as a treatment in early or subsequent recurrences has been effective in our series of patients. Current recommendations are that initial or early recurrences are treated with oral vancomycin 125 mg/6 h for 10 days (B-I). Of the 20 patients studied, three of them were not admitted and two of them were treated at first recurrence with oral vancomycin and later with intravenous metronidazole, obtaining a complete response. In any case, the purpose of this communication and its main interest lies in cancer patients' good response to metronidazole, and in that the clinical variables evaluated, as in other studies, reflect the association between prior antibiotic treatment, use of proton-pump inhibitor and CDI.

We conclude that perhaps, and despite the small number of patients, the high resolution obtained with metronidazole in cancer patients is remarkable.

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Acute respiratory infection caused by the human metapneumovirus: Analysis of 39 cases[☆]



Infección respiratoria aguda causada por el metapneumovirus humano: análisis de 39 casos

Dear Editor,

The human metapneumovirus (hMPV) was first described in 2001 in respiratory secretions, although previous serological studies showed that it was already circulating in humans since 1950.^{1,2} The hMPV is responsible for acute respiratory infections (ARI) and presents a worldwide seasonal distribution, predominating in the winter. It mainly affects children under 5 years of age, making it the second viral cause after the RSV.^{1,2}

ARI caused by hMPV in adults is a rare entity with a 3–10% incidence. This value is similar to that described for RSV (5%) and lower than influenza viruses (2%) during the winter season.^{1,2} Although most ARI caused by hMPV in adults are asymptomatic or with few clinical manifestations, they may have high morbidity and mortality (about 10%) in nursing homes and among the elderly in general.^{1,2}

We report a prospective study on ARI caused by hMPV in adults (>15 years of age) during the period between January 2014 and

March 2016. A throat swab was taken from each patient who came to the emergency room with suspected ARI to detect the presence of respiratory viruses. The diagnostic technique used was a commercial PCR-type genomic amplification in real time (Allplex[™] Respiratory Panel; Seegene, Seoul, South Korea). Medical records and epidemiological data of patients with hMPV in their respiratory sample were reviewed.

The study analyzed 2125 patients. Of these, 1020 (48%) were considered positive for respiratory viruses. hMPV was detected in 39 cases (3.8% of those positive and 1.8% of all patients). These 39 cases accounted for 21% of all hMPV detected in this study (79% in paediatric population).

Regarding sex distribution, 22 (56.4%) were women; the average age was 61.7 years (range 20–86 years). Coinfection with other respiratory viruses (4 rhinovirus and 2 adenovirus) was detected in 6 cases (15.4%). 89.7% of cases were detected between the months of February and April. Of the patients studied, 21 (53.8%) required hospitalization, and of these, 4 (19%) were admitted to the intensive care unit. No patient died as a consequence of or during the respiratory infection associated with hMPV. The main clinical symptoms and diseases are shown in Table 1. 31 patients received antibiotic treatment (79.5%): clavulanic acid (48%) and levofloxacin (45%). 5 patients were considered immunosuppressed (12.8%) and only one of them had no predisposing factors.

The percentage of hMPV detection in our study was 3.8%, similar to that already reported in larger studies.^{1,2} Compared to other viruses causing ARI in the adult population of our geographic area, we can observe an incidence of 7.8% for RSV,³ 7% for coronavirus⁴ and 0.38% for bocavirus.⁵

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Table 1

Main symptoms and diseases detected in the 39 patients infected with human metapneumovirus.

<i>Symptoms</i>	
Fever > 38 °C	23 (58.9)
Dyspnoea	14 (35.8)
Cough	13 (33.3)
Expectoration	8 (20.5)
Cold/flu symptoms	8 (20.5)
Shortness of breath	3 (7.6)
Diarrhoea	2 (5.1)
Headache	2 (5.1)
Disorientation	2 (5.1)
<i>Diseases</i>	
Pneumonia	14 (35.8)
Bronchitis	9 (23.1)
Cold/flu symptoms	8 (20.5)
Tracheobronchitis	6 (15.3)
Pharyngotonsillitis	1 (2.5)
Shortness of breath	1 (2.5)

Data are expressed as number of cases (%).

Among the respiratory diseases, hMPV has been described to cause pneumonia, bronchitis, tracheobronchitis and respiratory distress conditions.^{1,2} Pneumonia (35.8%) represented the main disease associated with hMPV in our study, followed by bronchitis and tracheobronchitis (23.1 and 15.3%, respectively). The frequency of hospitalization ranges from 20% to 55%, depending on the age and condition of the patient^{1,2}; in our group, it was 53.8%, and 19% of them were in the intensive care unit. This percentage is much higher than in the ARI caused by RSV (6.5%),³ Coronavirus (8%)⁴ or bocavirus (0%).⁵

ARI caused by hMPV appear to affect mainly the adult population with some underlying disease.^{1,2} Asthma, COPD and chronic heart diseases were present in 51.2% of our patients, besides the ailments typical to their age, including hypertension (43.5%) or diabetes mellitus (30.7%). 5 patients were considered immunocompromised (12.8%), all affected by leukaemia or lymphoma and one colon cancer.

Since there is no specific antiviral against hMPV, the only treatment is prevention of possible bacterial superinfection.^{1,2} 79.1% of our patients received antibiotic treatment with amoxicillin/clavulanic acid and levofloxacin. The mild to moderate nature of respiratory infections caused by hMPV in our study could determine the absence of deaths associated with this virus.

Conflict of interests

The authors declare no conflict of interest in connection with the results obtained in this study.

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