(1,900-2,800), 11 boys and 12 girls. Underlying diseases included 6 cases of esophageal atresia.

The procedure was performed by a pediatric pulmonologist in infants with an average age of 32 days (8–65) and an average weight of 2900 g (2,570-3,290) admitted to the neonatal unit. Patient care was the responsibility of the neonatologist. All procedures were performed under sedation, primarily ketamine. Respiratory support was used during the procedure, as follows: high flow nasal prongs in 9 (28.1 %), mechanical ventilation in 9 (28.1 %), CPAP in 5 (15.6 %), standard nasal prongs in 2 (6.3 %), laryngeal mask in 1 (3.1 %), and no support in 6 (18.8 %).

The indications (Table 1) that led to the realization of the procedure were: tracheoesophageal fistula (8), stridor (7), respiratory difficulty (3), difficulty to intubate (4), failure to extubate (3), atelectasis (2), upper airway obstruction (2), hypoventilation (1), and selective intubation (1).

Of the total bronchoscopies, 23/32 (69 %) were diagnostic; of these, 21/23 (91 %) revealed pathology and more than one abnormality was found during the examination in 10/23 (43 %). Nine bronchoscopies (9/32) were performed to monitor progress. In 4 of these, no new findings were revealed. It is interesting to note that in 1 of the control bronchoscopies, selective intubation could be performed in a patient with recurrent pneumothorax.

The most frequent bronchoscopic diagnoses were malacia and stenosis at different levels. Findings are summarized in Table 1.

During the procedure, 5 patients had transient hypoxemia that required the temporary withdrawal of the bronchoscope, although the examination of the airway could be completed in all patients. There were no significant differences in complications between preterm and term infants.

Fiberoptic bronchoscopy is a technique increasingly used in the NICU for its high diagnostic yield and safety record.[1]

Patients admitted to these units often have episodes of respiratory difficulty, repeated atelectasis, or intubation or extubation problems.[1,2] In all these processes, bronchoscopy may be required, or at least advisable.[3] Moreover, direct visualization of the airway is essential for the diagnosis of possible malformations. This technique is usually performed under sedation, permitting dynamic airway examination. The indications for the procedure tend to be: stridor, atelectasis, respiratory distress, or difficulty in intubation.[4] The most common bronchoscopic findings are mucous plugs, stenosis, and malacia at different levels.[1,5]

A high percentage of procedures reveal multiple diagnoses, so a full exploration of the upper and lower airway in each procedure is essential. In the case of suspected pneumonia or unilateral lung disease, bronchoalveolar lavage can also be performed during the procedure,[6] which can be useful both for designing antibiotic regimens and for diagnosing certain uncommon but not unknown diseases, such as altered surfactant synthesis.

The most common complications are bradycardias and mild hypoxia.[1] However, some authors believe that these situations are inherent to the procedure itself and cannot be considered complications,[7] since the vast majority are transitory and resolve after temporary withdrawal of the bronchoscope. The procedure is usually conducted in neonatal units with continuous monitoring and under the supervision of the neonatologist.

We can, then, conclude that bronchoscopy is a very useful technique in the NICU and one that offers a high safety profile in expert hands.

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Iatrogenic Caushing syndrome caused by inhaled corticosteroids in an HIV+ patient☆

Cushing iatrógeno secundario al uso de corticoides inhalados en paciente VIH

To the Editor:

The treatment of certain respiratory diseases, such as bronchial asthma, is based on systemic and inhaled corticosteroids.[1] However, their use has been associated with multiple side effects.[2,3] Iatrogenic Cushing's syndrome (CS) is typically a side effect of systemic corticosteroids, and its appearance after the use of inhaled corticosteroids (ICS) is rare. This complication has been studied more extensively in children[4] but it is rare in the adult population and often not properly considered when prescribing ICS. Nevertheless, any drugs that inhibit the cytochrome P450 (CYP450) enzyme pathway can induce CS. Some drugs used in the treatment of human immunodeficiency virus (HIV) are metabolized by this route.

Therapeutic strategies for the treatment of HIV have advanced significantly due to the availability of highly active antiretroviral therapy; however, the incorporation of new drugs means that we must be familiar with their metabolism and possible interactions to avoid side effects in our patients.

Some reports of iatrogenic CS caused by the interaction of fluticasone with ritonavir have been published,[5,6] and the interaction between inhaled fluticasone and cobicistat, a drug used in the treatment of HIV, has recently been described.[7]

We report the case of a 46-year-old man, diagnosed with HIV in 2008 and followed up in the infectious diseases department. He started treatment with cobicistat in 2018, his viral load was unde-

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tectable, and treatment adherence was good. He was also diagnosed with moderate persistent asthma, and was being monitored in the specialist asthma clinic and treated with budesonide/formoterol fumarate dihydrate 320/9 mcg and montelukast 10 mg. He presented for a check-up in May 2018. In this visit, he presented poor control of asthma symptoms, so treatment was switched to tiotropium 2.5 mcg, fluticasone furoate/vilanterol 184/22 mcg and 10 mg montelukast was maintained.

The patient attended the infectious diseases clinic 7 months later, reporting a 6-month history of generalized muscle weakness limiting his ability to perform his job, arthralgia in the ankles, elbows, and left shoulder, stiffness, edema and paresthesia in both hands, and a sensation of loss of muscle mass with accumulation of fatty tissue in the cervical region, with recent skin flaking. He had also been diagnosed with high blood pressure. The examination was significant for edema in the lower limbs, moon-shaped face, buffalo hump, abdomen with abundant adipose tissue, and purple stretch marks on the lower part of the abdomen. Clinical laboratory tests were requested as a first diagnostic step, and results were significant for low levels of cortisol in serum and urine with normal ACTH. These laboratory results, together with the patient's clinical signs, were consistent with iatrogenic CS. Antiretroviral treatment was interrupted: cobicistat was discontinued and switched to dolutegravir plus rilpivirine, and hydrocortisone 10 mg/12 h was also prescribed for its glucocorticoid and mineralocorticoid effects. Tiotropium was maintained.

In the follow-up, the patient's cortisol levels had normalized and the examination was normal with resolution of symptoms.

Cobicistat is a selective inhibitor of the cytochrome CYP3A enzymes and can trigger iatrogenic CS in patients using ICS. Fluticasone suppresses cortisol more than other inhaled steroids (including beclomethasone, budesonide, triamcinolone and flunisolide) due to its longer half-life and its greater binding affinity to the glucocorticoid receptor.

Symptoms of CS that occur within hours or days of starting treatment are psychiatric effects and increased appetite, while a cushingoid appearance, glucose intolerance or osteoporosis may take up to weeks or months to develop.[8]

In the case of our patient, cushingoid features developed 4 weeks after starting treatment and increased over time. Weight gain, stretch marks, proximal myopathy, and fatigue are the most common characteristics, but the form of presentation may vary.[9]

The diagnosis of CS is complex — and even more so in patients infected with HIV. These individuals may present central adiposity and buffalo hump, with raised serum cortisol levels. However, when CS is caused by exogenous administration of corticosteroids, serum and urinary cortisol may be low, as occurred in our case.

Proposed treatment is to discontinue ICS, and replace it with a low-dose oral steroid until the hypothalamic-pituitary-adrenal axis normalizes.

This case represents a significant drug–drug interaction between cobicistat and ICS, triggering the development of CS by an unconventional mechanism of systemic accumulation of inhaled fluticasone. These patients are a challenge for clinicians, since asthma must be controlled while simultaneously taking into account drug interactions. A correct diagnosis must be made, avoiding confusing these symptoms with the HIV itself, and strategies must be established in respiratory medicine clinics to manage asthma with inhalers that do not interact with other drugs.

ICSs are safe, yet we must take into account possible interactions and side effects when prescribing them.

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Tracheobronchial involvement in Crohn's disease☆

Afectación traqueobronquial por enfermedad de Crohn

To the Editor:

We report the case of a 53-year-old man, non-smoker, monitored for Crohn's disease of the ileum by the digestive diseases department from the age of 14 years. Ileocecal resection was performed more than 20 years previously. He has been receiving mercaptopurine for 12 years and infliximab for 6 years, and has had no flare-ups in the last 10 years.

He was referred to our clinic with a 1-month history of nonproductive cough and fever. During the course of these symptoms, he received 2 antibiotic regimens, first with levofloxacin and then with amoxicillin-clavulanate. The chest X-ray showed no significant changes and pulmonary function tests were significant only

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