injuries after receiving COVID-19 vaccination, especially in patients with particular health conditions.

Keywords: adverse drug reactions, autoimmune hepatitis, COVID-19 mRNA vaccine, HIV infection, vaccines.

PS-198 | Efficiency of vancomycin therapeutic drug monitoring in Tunisian pediatrics patients

H. Mastouri[1]; Z. Bouzaiene[1]; D. Amor[1]; S. Boujaafar[1]; A. Omezzine[1]; S. Abroug[2]; A. Bouslama[1]

[1]Service Biochimie CHU Sahloul, Sousse, Tunisia; [2]Service Pédiatrie CHU Sahloul, Sousse, Tunisia

Introduction: Vancomycin is widely prescribed in clinical practice for serious methicillin-resistant *Staphylococcus aureus* infections. Nevertheless, the recommended target trough concentrations guarantee a clinical response remains controversial for the pediatric population.

The main aim of this study is to assess the efficiency of vancomycin therapeutic drug monitoring (TDM) in pediatrics and to analyze the association between trough concentration and clinical response.

Material and methods: A prospective study including Tunisian pediatrics treated with vancomycin. Patients were subdivided into two groups: patients with normal renal function group (NHD) receiving a daily dose 60 mg/kg and hemodialysis patients group (HD) receiving 10 mg/kg after hemodialysis session. The results were interpreted according to the recommend target range varying from 10 to 20 mg/L [1].

We used two efficacy markers, the number of days required to have a CRP less than or equal to 50% of the initial CRP (50%CRP) and the number of days required to have a body temperature less than or equal to 37.5°C (TEM).

Results: Our study had included 41 patients, 48.7% male and 51.3% female. The median age and median weight were, respectively, 9 [2–12.5] years and 28 [10.75–37] kg. The median initial trough concentration was 14.01 [8.40–17.45] mg/L. In NHD group (20 patients), 70% of initial trough concentrations were included within target therapeutic range. For HD group (21 patients), 52.4% were under 10 mg/L. We conducted a multivariate analysis to assess the association between target attainment and clinical response. Target attainment had a significant influence on clinical response with $P = 0.03$ for 50%CRP and $P = 0.01$ for TEM. We noted that the association between associated antibiotic therapy and efficacy markers was not significant $P > 0.05$.

Discussion/Conclusion: Based on this study, we highlighted that a regular TDM is necessary for the pediatric population to reach the target trough concentrations and achieve a clinical response.

Reference:
[1] Rybak MJ et al. Am J Health-Syst Pharm. 2020; Volume 71: Pages 1361–1364.

Keywords: pediatrics patients, therapeutic drug monitoring, vancomycin.

PS-199 | Teriparatide prefilled pens and cartridges: Multidose formulations as a source of medication errors

F. Bellet[1]; P. B. Fargier[1]; P. Brunel[1]; M. Gony[2]; M. N. Beyens[1]

[1]Centre Régional de Pharmacovigilance, CHU de Saint Etienne, Saint-Étienne, France; [2]Centre Régional de Pharmacovigilance, CHU de Toulouse, Toulouse, France

Introduction: Teriparatide, a recombinant human parathyroid hormone analog, is currently the only injectable drug available for osteoporosis, which is marketed as multidose prefilled pens or cartridges and administered once daily, which may favor the occurrence of medication errors (MEs). Despite a national safety alert in April 2021 [1], device-related dosing errors consisted of the injection of the entire solution (28 doses) as a single dose seem to persist. We aimed to characterize MEs involving teriparatide formulations reported in the French Pharmacovigilance Database (FPVD).

Material and methods: All MEs (risk, intercepted and actual MEs with or without adverse drug reaction [ADR]) involving teriparatide identified in the FPVD until December 2022 were extracted and described (setting, stages, types, causes, consequences, and management).

Results: A total of 24 MEs were identified (four occurred after ANSM safety alert). All of them corresponded to actual MEs and occurred both in hospital and community settings, in patients of median age 74.5 years (IQR: 69.0–84.8). The reference product Forsteo® and its biosimilars Movymia® and Terrosa® were involved in 15, 8, and 1 cases, respectively. The administration stage ($n = 22$, 91.7%) accounted for the majority of the error reports. Error type was in almost all reports wrong dose ($n = 21$, 87.5%), corresponding to 3- to 28-fold overdoses, explicitly associated with wrong technique in four cases (solution drawn into a syringe). ADRs were reported in nine (42.9%) of the overdose cases and were transient nausea/vomiting, fatigue, tachycardia/palpitations, hypotension, and/or hypercalcemia. Management consisted of discontinuation of teriparatide, clinico-biological monitoring, and

hydration through a short hospitalization in five cases. In 13 reports, causes of error related to products (improper packaging, pen without needle, etc.) were reported in addition to human causes.
Discussion/Conclusion: Usage errors associated with multidose formulations of teriparatide mainly consist of overdoses without serious clinical consequences. Risk minimization and prevention measures still need to be strengthened.

Reference:
[1] ANSM. 2021. https://ansm.sante.fr/actualites/stylo-multidoses-dans-le-traitement-de-losteoporose-ne-jamais-injecter-la-totalite-de-la-solution-en-une-seule-fois

Keywords: medication errors, multidose formulations, pharmacovigilance, teriparatide.

PS-200 | Atrial fibrillation induced by azathioprine with positive rechallenge

W. Kaabi; K. Ferchichi; F. Zgolli; I. Hamza; S. Kastalli; A. Zaiem; S. El Aidli

Service de Recueil et d'Analyse des Effets Indésirables, Centre National Chalbi Belkehia de Pharmacovigilance, Tunis, Tunisia

Introduction: Atrial fibrillation is a prominent arrhythmia with a prevalence between 2.3% and 3.4% and a mortality rate of one in four. Various arrhythmias may be caused or exacerbated by several commonly used medications. A few cases of atrial fibrillation (AF) have been attributed to azathioprine.
Material and methods: We report the case of a 65-year-old man who developed symptomatic AF for the first time following azathioprine therapy.
Results: He reported that his complaints began immediately after the initiation of azathioprine for idiopathic pulmonary fibrosis. A thoracic pain accompanied by palpitations prompted him to visit the emergency department, where he received antiarrhythmic drugs, resulting in normal sinus rhythm within a few hours. The patient was discharged with medication containing amiodarone. When azathioprine was re-administered, the initial complaints reappeared. The cardiac examination revealed no risk factors for atrial fibrillation. During the episodes of arrhythmia, no additional precipitating factors were reported. Due to the close temporal relationship between the arrhythmia and drug administration and the recurrence of arrhythmia upon rechallenge, we hypothesized that azathioprine has an intrinsic pro-arrhythmic effect.
Discussion/Conclusion: Atrial fibrillation caused by azathioprine is a rare adverse effect of this medication. Therefore, a heightened awareness of this issue is required when administering this drug.

Keywords: adverse drug reactions, atrial fibrillation, azathioprine.

PS-201 | Lyell's syndrome after bosentan use

S. Debbeche; S. Kastalli; A. Jerbi; F. Zgolli; O. Charfi; I. Aouinti; S. El Aidli

National Centre Chalbi Belkahia of Pharmacovigilance, Tunis, Tunisia

Introduction: Lyell's syndrome or toxic epidermal necrolysis (TEN) is a rare, potentially life-threatening mucocutaneous disease. It is often a delayed-type drug-induced hypersensitivity reaction, and the most common drugs associated with this condition are antibiotics, nonsteroidal anti-inflammatory drugs, and antiepileptics [1].
Bosentan is a competitive inhibitor of endothelin-1 receptors indicated in the treatment of pulmonary hypertension and generally well tolerated.
We report a case of bosentan-induced TEN notified to Tunisian National Center of Pharmacovigilance in August 2022. To our knowledge, this is the first case reported in the literature.
Material and methods: This case was analyzed according to the French imputability method of causality assessment [2].
Results: This is a 64-year-old woman with a history of multiple autoimmune syndrome since 2018 (rheumatoid arthritis, Sjogren's syndrome, scleroderma, and myopathy). In July 2022, she received bosentan 62.5 mg twice daily (starting on the 7th of July 2022) for a pulmonary hypertension diagnosed in March 2022. Two days later, the patient developed a generalized non-itchy skin rash. Toxidermia was suspected, and bosentan was discontinued. Forty-eight hours after, the patient's dermatologic examination revealed skin infiltration, peeling, and exfoliation.
She was admitted to the department of internal medicine for severe hypotension, fever, rhabdomyolysis, and skin detachment of a total skin surface of 37% with mucosal involvement. The histologic findings were epidermis involvement: apoptic and necrotic cells, a multifocal detachment dermo-epidemis, inflammatory infiltration, and edema. She was transferred later on to the intensive care unit for severe sepsis. The patient died few days later. A pharmacovigilance investigation was carried out, and the responsibility of bosentan could not be ruled out.
Discussion/Conclusion: TEN is a severe life-threatening drug reaction. Early diagnosis and management must be provided in order to ensure the best