administration of diazepam 5 mg/IV. TCVC implantation was suspended, and the patient was transferred to the ICU for cardiac and neurological monitoring. During her stay, her ECG tracing showed no abnormalities, and a CT scan was performed with no pathological findings. After 24 h observation, the patient remained haemodynamically stable with no need for ventilation or vasoactive drugs, her anisocoria disappeared and her HR and BP normalised.

Our patient presented a delayed toxic response to lidocaine with CNS involvement (paraesthesia, seizures and anisocoria) probably due to several causes: (1) the patient's low weight and high dose of lidocaine (total dose administered: 300 mg; a seizure-inducing dose for this patient: 268–596 mg), and (2) low body fat with a BMI of 16.4 kg/m^2 (fat tissue index 5.9 kg/m^2).

According to various publications, lipid solutions could be used as an effective antidote in LA toxicity.[7] Lidocaine is a fat-soluble anaesthetic and the patient had low body fat; this could be why lower doses have a higher likelihood of toxicity. The only unexplained matter was the patient's anisocoria which resolved spontaneously. Regarding cardiotoxicity, the patient had sinus tachycardia with no increase in BP. She later underwent TCVC implantation using mepivacaine as an LA without incident. Mepivacaine is metabolised at a rate of 99% in the liver in less toxic products with a milder vasodilating effect than lidocaine, giving it a better safety profile.

REFERENCES

1. Valencia Gómez RE, Garcia Araque HF. Toxicidad por anestésicos locales: revisión de la literatura. Rev Col Anest. 2011;39:40–54.
2. Kindler CH, Yost CE. Two-pore domain potassium channels: new sites of local anesthetic action and toxicity. Reg Anesth Pain Med. 2005;30:260–74.
3. Hollmann MW, Herroeder S, Kurz KS, Hoenemann CW, Struemper D, Hahnenkamp K, et al. Time dependent inhibition of G-protein coupled receptor signaling by local anesthetics. Anesthesiology. 2004;100:852–60.
4. Gomez Martin Zarco JM. Toxicidad por administración local de anestésicos locales. Acta Otorrinolaringo Esp. 2003;54:657–60.
5. Rosenberg PH, Veering BT, Urmey WF. Maximum recommended doses of local anesthetics: A multifactorial concept. Reg Anesth Pain Med. 2004;29:564–75.
6. Errando CL. Toxicidad de los anestésicos locales. Prevención y tratamiento Rev Esp Anestesiol Reanim. 2013;60 Suppl 1:65–72.
7. Ghiang YY, Tseng KF, Lih YW, Tsai TC, Liu CT, Leung HK. Lidocaine-induced CNS toxicity. A case report. Acta Anaesthesiol Sin. 1996;34:243–6.

George Estifan Kasabji*, Cristina Lucas Álvarez, Raquel Fernández Ibán

Servicio de Nefrología, Complejo Asistencial Universitario de León, Hospital de León, León, Spain

* *Corresponding author.*
E-mail address: jorgekasabji@gmail.com (G. Estifan Kasabji).

1 May 2019

https://doi.org/10.1016/j.nefroe.2019.09.004

Letter to the Editor

Tuberculous interstitial nephritis: A difficult diagnosis that requires a high clinical suspicion☆

Nefritis intersticial tuberculosa, un diagnóstico difícil que precisa de una alta sospecha

Dear Editor,

Tuberculosis remains a global public health problem, especially in developing countries. Somewhat more than half of cases (55%) occur in Asia, followed by Africa (31%), with a lower prevalence in the Mediterranean area (6%), Europe (5%) and Latin America (3%).[1] Regarding forms of presentation, pulmonary tuberculosis remains the most common. Among

DOI of original article:
https://doi.org/10.1016/j.nefro.2019.05.002.
☆ Please cite this article as: Fernández-Vidal M, Canllavi Fiel E, Bada Bosch T, Trujillo Cuéllar H, García Martín F, Gutiérrez Martínez E, et al. Nefritis intersticial tuberculosa, un diagnóstico difícil que precisa de una alta sospecha. Nefrologia. 2020;40:475–477.

Table 1 – The patients' clinical characteristics and clinical course.

	Case 1	Case 2
Sex	Female	Male
Age (years)	76	32
Rheumatic disease	Rheumatoid arthritis	Ankylosing spondylitis
Anti-TNF-α drug	Adalimumab	Certolizumab
Treatment following TIN diagnosis	Rifampicin, isoniazid, pyrazinamide and ethambutol + prednisone	
Prior SCr (mg/dl)	0.86	0.67
SCr at diagnosis (mg/dl)	3.3	2.16
SCr after 12 months (mg/dl)	1.8	1.5

extrapulmonary forms, urogenital tuberculosis is the second most common form caused by *Mycobacterium tuberculosis*, occurring in around 15–25% of cases.[2]

In addition to traditional risk factors (underdeveloped countries, immunosuppression due to HIV[3]), in the 21st century, drug-induced immunosuppression has gained importance in developed countries, especially in patients with solid organ transplants or on biologic treatments for rheumatic diseases.[1,4]

At our centre, two patients with rheumatic diseases being treated with anti-TNF-α drugs were diagnosed with interstitial nephritis secondary to tuberculosis infection; both followed a good clinical course in terms of kidney function after antituberculosis and steroid treatment. Table 1 provides a summary of the patients' clinical characteristics and clinical course.

Anti-TNF-α agents alter the physiological function of TNF-α. This brings about a disruption in cell activation and proliferation, production of cytokines and formation of granulomas, which is key against intracellular infections. This may lead to exacerbation of chronic infections or the onset of new conditions, often of tuberculous aetiology.[4]

Classic kidney involvement consisted of invasion of the renal medulla by *M. tuberculosis*, leading to a destruction of the parenchyma and spread towards the urinary tract with resulting ureteral dilatation, with some cases requiring shunting of the excretory tract or even nephrectomy.[1] At present, these advanced forms seem to be less common, such that in clinical practice only patients with subacute deterioration of kidney function and a pattern of tubulointerstitial nephritis (TIN) — i.e. preserved diuresis with mild or no proteinuria without microhaematuria — are seen. Glomerular involvement and amyloidosis are less common.[1]

Diagnosis requires a high degree of suspicion, especially if there is only kidney involvement (with no fever or lung involvement). As mentioned above, the most common abnormality is a pattern of TIN with kidney function deterioration associated with sterile pyuria.[5] Some cases may show eosinophilia, although this is not a constant.[6] Concerning microbiology tests, both urine culture and Ziehl–Neelsen staining in urine usually have low sensitivity.[2,5] Compared to the previous microbiology tests, PCR for *M. tuberculosis* in urine has greater sensitivity and is preferred, as it yields results more quickly. In addition, although the Mantoux test continues to be used, the interferon-gamma release assay (IGRA) has a specificity close to 92%.[4] Regarding imaging tests, it is recommended that a plain chest X-ray be ordered in all cases to rule out lung involvement; CT and PET/CT scanning are useful in diagnosing spreading of tuberculosis.[2,5]

In cases in which a kidney biopsy is performed, histology usually reveals tubulointerstitial involvement with significant inflammatory infiltrate and a predominance of eosinophils. Granulomas do not always develop (they develop in 20–30% of cases, depending on the series) and identification of acid–alcohol-fast bacilli may be difficult.[5–7] Immunofluorescence is typically negative, and electron microscopy does not usually show abnormalities.[6] Furthermore, in granulomatous interstitial nephritis a differential diagnosis should be made with other possible aetiologies: drugs, systemic diseases (sarcoidosis, Sjögren's syndrome, etc.), bacterial infections, viral infections and parasitic infestations.[3,6,8] Fig. 1 shows two histological slices from the kidney biopsy in one of our patients.

The treatment regimen is based on four antituberculosis drugs, generally isoniazid, rifampicin, pyrazinamide and ethambutol. In addition, it must be kept in mind that concomitant treatment with oral steroids improves the prognosis of the kidneys, since it reduces tubulointerstitial inflammation and carries a lower risk of progression to fibrosis.[5,7,8]

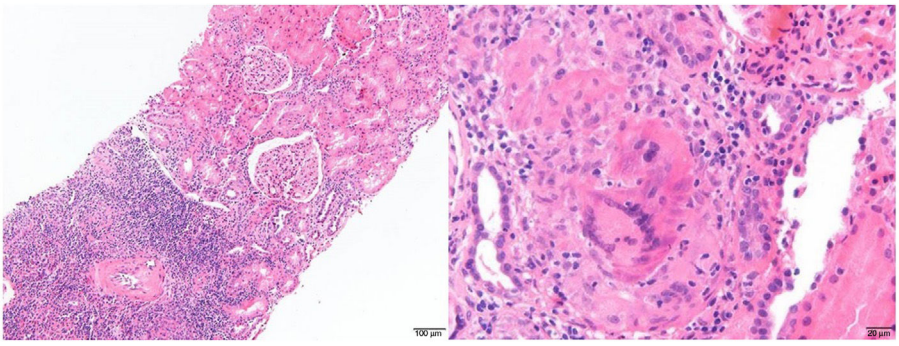

Fig. 1 – Panoramic view including two glomeruli with no significant abnormalities and tubulointerstitial patchy inflammatory infiltrate accompanied by eosinophils and tubulitis phenomena (left). Non-necrotising granuloma with multinucleated giant cells (right). Haematoxylin–eosin staining.

The prognosis for the kidneys is usually poor in cases with a glomerular filtration rate (GFR) of less than 15 ml/min at diagnosis, with up to 66% of patients requiring renal replacement therapy after 12 months. However, in subjects with a GFR of more than 15 ml/min at diagnosis, kidney function usually remains stable or improves after treatment.[5,6] It is important to start treatment quickly as this favors kidney survival with no need for replacement therapy, as occurred with our two patients. Nevertheless, we stress that although both patients followed a satisfactory course, neither ended up recovering their prior kidney function. This alludes on the one hand to the need for early diagnosis or suspicion and on the other hand to the severity and degree of irreversibility of many of the lesions that develop.

REFERENCES

1. Daher EF, da Silva GB, Barros EJ. Renal tuberculosis in the modern era. Am J Trop Med Hyg. 2013;88:54–64.
2. Figueiredo AA, Lucon AM, Srougi M. Urogenital tuberculosis. Microbiol Spectr. 2017;5, http://dx.doi.org/10.1128/microbiolspec.TNMI7-0015-2016.
3. Fallouh B, Nair H, Langman G, Baharani J. Unusual cause of acute renal failure in a patient with HIV. Kidney Int. 2010;78:117–8.
4. Xie X, Li F, Chen JW, Wang J. Risk of tuberculosis infection in anti-TNF-α biological therapy: from bench to bedside. J Microbiol Immunol Infect. 2014;47:268–74.
5. Delafosse M, Teuma C, Miailhes P, Nouvier M, Rabeyrin M, Fouque D. Severe tubulointerstitial nephritis: tracking tuberculosis even in the absence of renal granuloma. Clin Kidney J. 2018;11:667–9.
6. Chapagain A, Dobbie H, Sheaff M, Yaqoob MM. Presentation, diagnosis, and treatment outcome of tuberculous-mediated tubulointerstitial nephritis. Kidney Int. 2011;79:671–7.
7. Eastwood JB, Corbishley CM, Grange JM. Tuberculosis and tubulointerstitial nephritis: an intriguing puzzle. Kidney Int. 2011;79:579–81.
8. Praga M, González E. Acute interstitial nephritis. Kidney Int. 2010;77:956–61.

María Fernández-Vidal[a,*], Elizabeth Canllavi Fiel[a], Teresa Bada Bosch[a], Hernando Trujillo Cuéllar[a], Florencio García Martín[a], Eduardo Gutiérrez Martínez[a], María Molina Gómez[b], Marina Alonso Riaño[c], Manuel Praga Terente[a]

[a] *Servicio de Nefrología, Hospital Universitario 12 de Octubre, Madrid, Spain*
[b] *Servicio de Nefrología, Hospital Universitario Arnau de Vilanova, Lleida, Spain*
[c] *Servicio de Anatomía Patológica, Hospital Universitario 12 de Octubre, Madrid, Spain*

[*] *Corresponding author.*
E-mail address: maria.91fdez@gmail.com (M. Fernández-Vidal).

1 April 2019

https://doi.org/10.1016/j.nefroe.2020.09.004

Letter to the Editor

Reactivation of hepatitis B virus in patient that rests dialysis after renal transplantation. How can we prevent it or anticipate it in diagnosis?☆

Reactivación silenciosa del virus de la hepatitis b en paciente que reinicia diálisis tras trasplante renal ¿Cómo podemos prevenirlo o anticiparlo en el diagnóstico?

Dear Editor,

Hepatitis B virus (HBV) infection has high rates of morbidity and mortality in the general population. In chronic kidney disease (CKD), these vary depending on patient characteristics. In dialysis, its prevalence ranges from 0 to 7% to 10–20

DOI of original article:
https://doi.org/10.1016/j.nefro.2019.06.006.
☆ Please cite this article as: García LC, Alegre PT, Villalta Robles VM, Calvo AA, Gómez MAR, Benito MH, et al. Reactivación silenciosa del virus de la hepatitis b en paciente que reinicia diálisis tras trasplante renal ¿Cómo podemos prevenirlo o anticiparlo en el diagnóstico? Nefrologia. 2020;40:477–479.