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CASO CLÍNICO

Detection and management of a case of drug-resistant hypertension

Detección y manejo de un caso de hipertensión farmacorresistente

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ABSTRACT

Community pharmacies, with more patient interaction than primary care physicians (PCP), are well-positioned to detect medication-related problems (DRP). The case of José, 82, diagnosed with hypertension in 2002, highlights the collaborative role of pharmacists. Despite regular antihypertensive treatment, José's blood pressure rose, prompting a thorough assessment of his medication history. A self-measurement of blood pressure (SMBP) revealed consistently high readings, leading to suspicion of primary hyperaldosteronism. Referral to the PCP was accompanied by a detailed referral letter, justifying the suspicion and recommending specific diagnostic tests. José experienced hypotension during a summer holiday, further substantiating the suspicion. Diagnostic tests, including an MRI, revealed a 2mm aldosterone-producing adenoma. While awaiting surgery, José maintained his antihypertensive therapy, with post-surgery evaluation planned. The case underscores the pharmacist's crucial role in screening for resistant hypertension, collaborative care, and considering multiple factors in diagnostic decisions.

PALABRAS CLAVE
Adenoma
Hipertensión
Resistente
Colaboracion interprofesional

RESUMEN

Las farmacias comunitarias, con más interacción con el paciente que los médicos de atención primaria (PCP), están bien posicionadas para detectar problemas relacionados con la medicación (DRP). El caso de José, de 82 años, diagnosticado de hipertensión en 2002, pone de manifiesto el papel colaborador de los farmacéuticos. A pesar del tratamiento antihipertensivo regular, la presión arterial de José aumentó, lo que provocó una evaluación exhaustiva de su historial de medicación. Una automedición de la presión arterial (SMBP, por sus siglas en inglés) reveló lecturas consistentemente altas, lo que llevó a sospechar hiperaldosteronismo primario. La derivación al médico de atención primaria se acompañó de una carta de derivación detallada, justificando la sospecha y recomendando pruebas diagnósticas específicas. José experimentó hipotensión durante unas vacaciones de verano, lo que corrobora aún más la sospecha. Las pruebas diagnósticas, incluida una resonancia magnética, revelaron un adenoma productor de aldosterona de 2 mm. A la espera de la cirugía, José mantuvo su terapia antihipertensiva, con una evaluación postoperatoria planificada. El caso subraya el papel crucial del farmacéutico en la detección de la hipertensión resistente, la atención colaborativa y la consideración de múltiples factores en las decisiones diagnósticas.

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1. BACKGROUND

Patients visit the pharmacy many more times per year than their primary care physicians (PCP), with the community pharmacist having much more patient care time than their own PCP. This makes it easier for the community pharmacy team to detect medication-related problems (DRP), and through collaborative practice with the primary care team, any DRP that may arise can be addressed earlier.

2. CASE PRESENTATION

José, 82 years old, weight 87 kg, height 179 cm, non-regular customer of the pharmacy until 2023, diagnosed with hypertension in 2002, no other pathology. He does not smoke, drinks occasionally, does moderate physical exercise (walking) for 6-10 hours a week. He has no family history of hypertension, although he does have diabetes and inherited familial hypercholesterolemia. His blood pressure has been within range for quite some time, but he told us that since the summer of 2022 his blood pressure had risen and it was not enough with the medication he was taking at the time, adding his PCP lercanidipine 10 mg and doxazosin 4 mg (Table 1).

After several months in which the patient told us that he was not feeling well, we assessed his compliance with treatment, concluding that the patient was taking his medication correctly.

3. ASSESMENT

According to the guidelines of the Spanish Society of Nephrology, if resistant hypertension is suspected, a self-measurement of blood pressure (SMBP) is performed (Figure 1).

In the SMBP data we can see that blood pressure is slightly high throughout the day (SBP = 145 mmHg, DBP =8 5 mmHg; Heart rate = 87beats/min), with peaks of SBP =1 51 mmHg, DBP = 87 mmHg, Heart rate = 87 beats/min, with several drops in blood pressure not associated with the hours of taking medication (SB P= 102 mmHg; DBP = 58 mmHg; Heart rate = 75 beats/min). It was therefore decided to refer the patient to his PCP by means of a referral letter with suspicion of primary hyperaldosteronism, a frequent cause of secondary hypertension and resistant hypertension, which entails an increase in vascular risk and organ damage related to both blood pressure and aldosterone levels (1).

4. TREATMENT

Therefore, a new blood test with aldosterone, calcium, sodium and potassium levels is recommended to his PCP (3).

June 2023: The patient went to the coast for a summer holiday, where he suffered an episode of hypotension and lost consciousness for a few seconds.

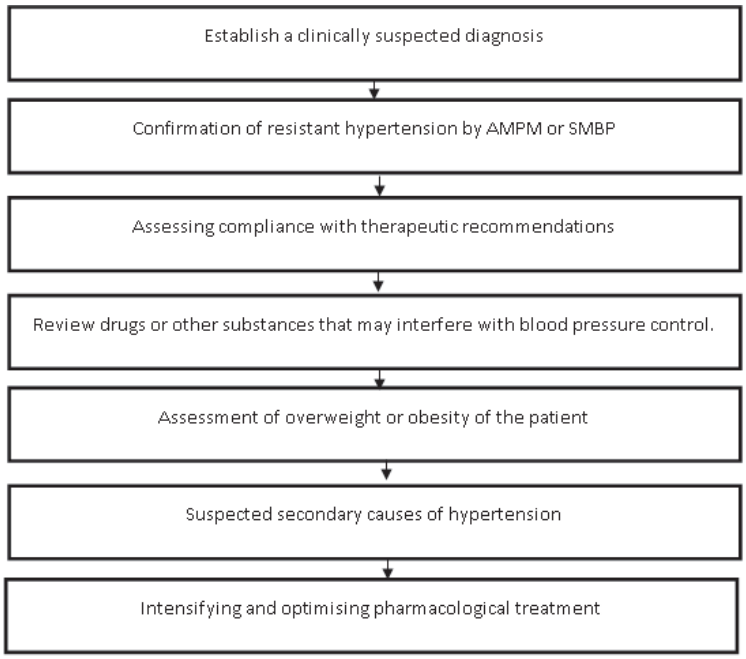

Figure 1. Diagnostic and therapeutic process of resistant hypertension (2)

Table 1. Treatment evolution

Jan-22	Jul-22	Jan-23	Jul-23	Dec-23
Carvedilol 6,25 mg	Carvedilol 6,25 mg	Carvedilol 25 mg	Carvedilol 25 mg	Carvedilol 25 mg
Losartan 100 mg	Losartan 100 mg	Losartan 100 mg	Losartan 100 mg	Losartan 100 mg
	Lercanidipine 10 mg	Lercanidipine 10 mg	Lercanidipine 10 mg	Lercanidipine 10 mg
	Doxazosin 4 mg	Doxazosin 4 mg	Doxazosin 4 mg	Doxazosin 4 mg
		Folic acid/b12	Folic acid/b12	Folic acid/b12
			Allopurinol 100mg	Allopurinol 100 mg
			Paricalcitol 1mg	Paricalcitol 1 mg
				Atorvastatin 40 mg
				Acetylsalicylic acid 100 mg
				Prednisone 5-10-30 starts prednisone regimen 6 months

He was transferred to Granada and underwent a complete blood test, obtaining high values of the aldosterone to renin ratio (ARR) ARR=46ng/dL, serum potassium 3.9mEq/L, serum sodium 139mEq/L, urine sodium: 143 mEq/L. Hypoparathyroidism was detected and due to the elevated ARR levels, an MRI scan was performed, showing a 2mm aldosterone-producing adenoma in the right adrenal gland.

5. OUTCOMES

December 2023: The patient is on the waiting list for surgical treatment of the adenoma.
The patient continues with the same antihypertensive therapy until the time of surgery, after surgery the new drug therapy will be evaluated.

6. DISCUSSION

Several published case studies echo the importance of community pharmacies in detecting medication-related problems (DRPs) and collaborating with primary care teams.

Similarly, in a case series published in 2023, one patient had a history of resistant hypertension for many years and had a negative initial assessment of secondary hypertension (including ARR). On re-evaluation, the ARF was close to the cut-off point and renin remained normal after prolonged strict drug washout, and further study of the PA demonstrated a unilateral aldosterone-producing adenoma that was surgically removed, resulting in complete biochemical remission and partial clinical success. Another patient was diagnosed with idiopathic hyperaldosteronism combined with obstructive sleep apnoea syndrome, which could increase renin leading to a negative ARR, and finally obtained a better therapeutic effect with PA-specific spironolactone as well as continuous positive airway pressure. Patient 3, with hypokalaemia as the main condition, was finally diagnosed with PA after exclusion of other diseases, and underwent laparoscopic adrenalectomy, with histological confirmation of an aldosterone-producing adenoma. Postoperatively, patient 3 achieved complete biochemical success without medication. The clinical status of all three patients was effectively managed, resulting in either complete resolution or notable improvement of their respective conditions (4).

José's case aligns with existing literature, emphasizing the pivotal role of community pharmacists in early DRP detection, collaborative care, and the need for comprehensive investigations in suspected resistant hypertension cases.

It is important when screening whether or not a patient may have resistant hypertension, the patient's

control of their medication, since DRPs are one of the main causes of secondary hypertension.

Once the suspicion has been established, a referral should be made to their PCP, justifying our suspicions by means of the diagnostic tests available to us in community pharmacy. In this case AMPM or SMBP (ambulatory blood pressure monitoring) if a holter is available.

When determining the ARR, it should be borne in mind that there are many active ingredients that can modify the ARR, including antihypertensives themselves, but also non-steroidal anti-inflammatory drugs or even certain diets, which can lead to false positives in the diagnosis. It is in these cases that imaging tests, such as magnetic resonance imaging (MRI), can help define the diagnosis.

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