Cost-Effectiveness Analysis of Sparsentan for the Treatment of Immunoglobulin A Nephropathy in Spain

EE220

GOICOECHEA M[1], PARRA E[2], CLIMENTE M[3], RAMÍREZ DE ARELLANO A[4], RUIZ-ANDRES O[5], SANCHO C[6], LÓPEZ-MARTÍNEZ N[6], POMARES E[6]
[1]Hospital Gregorio Marañón, Madrid, Spain; [2]Hospital Universitario Miguel Servet, Zaragoza, Spain; [3]Hospital Universitario Doctor Peset, Valencia, Spain; [4]CSL Vifor, Zürich, Switzerland; [5]CSL Vifor, Barcelona, Spain; [6]Market Access and Healthcare Consulting, Cencora Spain, Barcelona, Spain

INTRODUCTION

- Immunoglobulin A nephropathy (IgAN) is a rare autoimmune disease and a leading cause of kidney failure[1-3], often progressing to renal replacement therapy (RRT) (dialysis or kidney transplant), most patients progressed to kidney failure within 10–15 years[4]. IgAN is a progressive and potentially life-threatening disease with a high clinical burden, significantly affecting quality of life and life expectancy[5].
- Proteinuria is the most important modifiable prognostic factor for disease progression in IgAN[3,6-9]. Elevated levels are associated with a faster progression to end-stage renal disease (ESRD)[4], and increased healthcare costs, particularly in advanced stages[10-12].
- The Kidney Disease Improving Global Outcomes (KDIGO) 2025 Clinical Practice guideline recommends reducing proteinuria to below 0.5 g/day (ideally 0.3 g/day) using renin-angiotensin-aldosterone system inhibitors and dual endothelin angiotensin receptor antagonist (such as sparsentan) to manage the generic responses to IgAN-induced nephron loss and glucocorticoids to manage the IgAN-specific driver for nephron loss[3].
- Sparsentan is a dual endothelin angiotensin receptor antagonist, indicated for the treatment of adults with primary IgAN and urine protein excretion (UPE) ≥1.0 g/day[13]. Its efficacy and safety were evaluated in the phase 3 PROTECT trial, compared to maximum labeled dose of irbesartan. At week 36, sparsentan demonstrated a 41% greater relative reduction in proteinuria compared to irbesartan ($p<0.001$)[14].

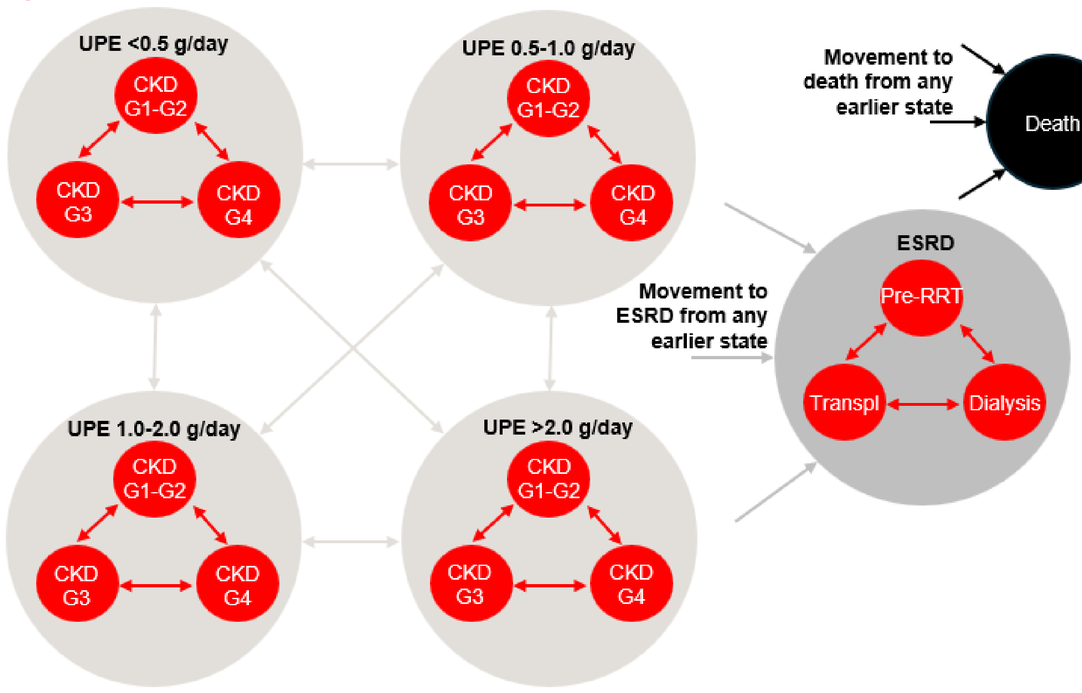
OBJECTIVE

- To evaluate the cost-effectiveness of sparsentan versus irbesartan (at its maximum labeled dose) in patients with IgAN and significant proteinuria (UPE ≥1.0 g/day) from the Spanish National Health System (NHS) perspective.

METHODS

- A 16-state Markov model was developed to simulate the long-term disease progression in patients treated with sparsentan versus irbesartan (Figure 1).

Figure 1. Model structure



CKD, chronic kidney disease; ESRD, end-stage renal disease; RRT, renal replacement therapy; Transpl, transplant; UPE, urine protein excretion.

- Model inputs and assumptions in the base case are detailed in Table 1.

Table 1. Base case settings

Patients	▪ Adult patients with primary IgAN and UPE ≥1.0 g/day
Intervention	▪ Sparsentan, administered orally at a dose of 200 mg/day for 14 days (initial dose), followed by 400 mg/day (maintenance dose)[13]
Comparator	▪ Irbesartan, administered orally at a dose of 150 mg/day for 14 days (initial dose), followed by 300 mg/day (maintenance dose, corresponding to maximum labeled dose)[14]
Outcome	▪ ICER, expressed as cost per QALY gained and as cost per LYG
Perspective	▪ Spanish NHS (including only direct costs)
Time horizon	▪ Lifetime (54 years)
Cycle length	▪ 12-weeks
Discount rates	▪ 3.0% for costs and health outcomes[15]. For health outcomes, a discount rate of 3% was applied up to year 20, 2.0% from year 20 to 30, and 1.5% from year 30 onwards[16]
Transition probabilities	▪ UPE states: based on 108-week PROTECT trial data[14] ▪ CKD states: from the long-term UK National Registry of Rare Kidney Diseases data[4] ▪ ESRD states: based on data from the Spanish Registry of Renal Patients[17], expert opinion, and market research[18]
Mortality	▪ Based on KDIGO CKD 2024 guideline[19], Knoop et al. (2013)[20] and INE[21]
Efficacy HR	▪ Based on PROTECT trial data[14]
Costs	▪ Drug acquisition costs: based on website of the Spanish General Council of Official Associations of Pharmacists (BOT PLUS)[22] ▪ CKD G1–G4 and pre-RRT costs: from a report including Spanish data, using the Catalan Government's Official Healthcare Price Bulletin (2020) and published literature[23] ▪ ESRD costs: Procedure and maintenance costs were estimated via a micro-costing approach based on eSalud database[24], López-Sánchez et al. (2019)[25], Navarro et al. (2024)[26], Sánchez-Escudero et al. (2015)[27], Spanish Registry of Renal Patients[17] and expert opinion. Immunosuppressive therapy costs were derived from Bot PLUS[22] ▪ AE costs: Based on ICD-10 codes and hospitalization costs from the CMBD database[28]
Utilities	▪ Based on PROTECT trial[14] and Cooper et al. (2020)[29]
Treatment interruption	▪ Sparsentan discontinuation at a constant per-cycle rate (1.68%) based on the PROTECT trial[30] ▪ Stopping rule at week 36 for non-responders (i.e., UPE ≥2 g/day and <30% reduction from baseline)

AE, adverse event; CKD, chronic kidney disease; ESRD, end-stage renal disease; HR, Hazard ratio; ICER, incremental cost-effectiveness ratio; IgAN, Immunoglobulin A nephropathy; INE, *Instituto Nacional de Estadística*; KDIGO, Kidney Disease Improving Global Outcomes; LYG, live year gained; NHS, National Health System; QALY, quality-adjusted life year; RRT, renal replacement therapy; UK, United Kingdom; UPE, urine protein excretion.

RESULTS

Base case

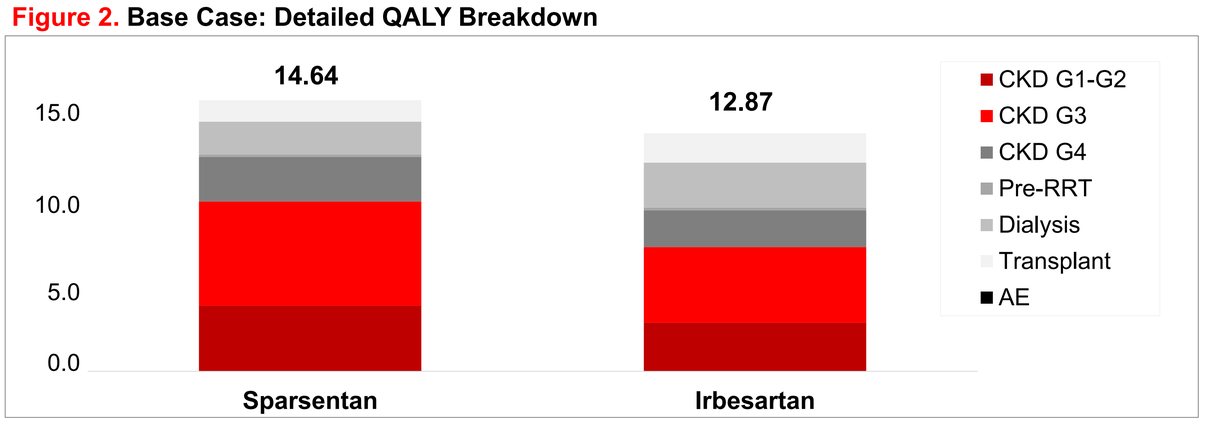
- Treatment with sparsentan was more effective (14.64 versus 12.87, quality-adjusted life year [QALY]) compared to irbesartan (Table 2). The majority of QALY gains with sparsentan were driven by patients spending more time in CKD G1-G4 stages, rather than progressing to ESRD (Figure 2).
- The overall cost increase (€106,399) associated with sparsentan (Table 2 and 3) was partially offset by savings in dialysis, transplant procedures and maintenance, as well as patient management in pre-RRT and CKD G4 stage. Notably, cost savings related to ESRD management of €100,676/patient were observed with sparsentan (Table 3).
- The resulting incremental cost-effectiveness ratio (ICER) of €59,890/QALY (Table 2) suggests that sparsentan may be considered cost-effective at a willingness-to-pay threshold of €40,000–60,000/QALY, commonly accepted in Spain for economic evaluation[31,32], and further supported by sparsentan's orphan drug designation[33].

Table 2. Base case results

	Total costs	Total QALY	Total LYG	ICER €/QALY	ICER €/LYG
Sparsentan	€ 493,692	14.64	18.21	-	-
Irbesartan	€ 387,293	12.87	17.07	-	-
Incremental	**€ 106,399**	**1.78**	**1.14**	**€ 59,890**	**€ 93,715**

ICER, incremental cost-effectiveness ratio; LYG, live years gained; QALY, quality-adjusted life year.

Figure 2. Base Case: Detailed QALY Breakdown



AE, adverse event; CKD, chronic kidney disease; QALY, quality-adjusted life year; RRT, renal replacement therapy.

Table 3. Base Case: Detailed Cost Breakdown

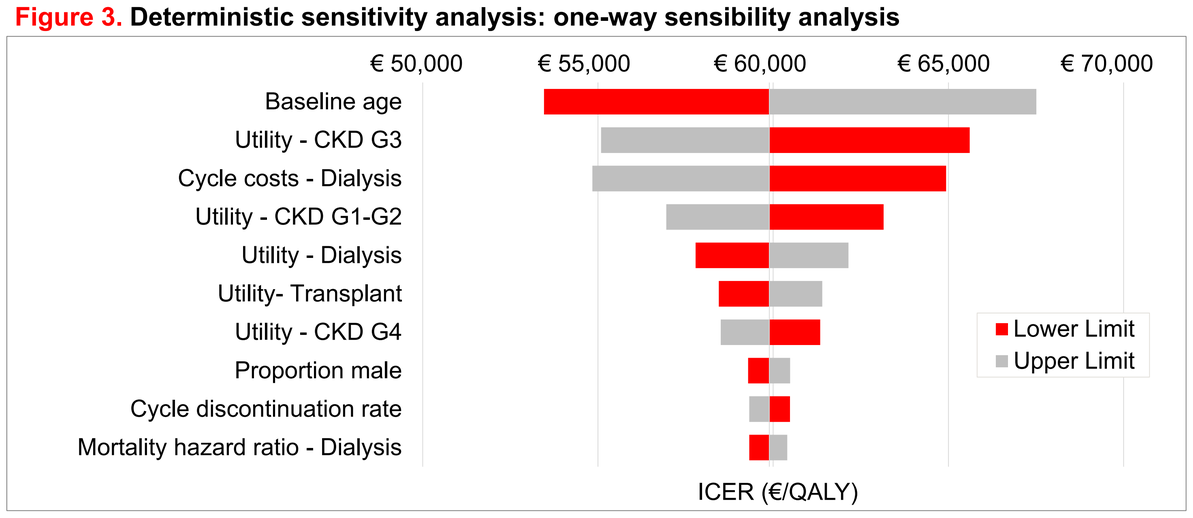
	Sparsentan	Irbesartan	Incremental
Total costs	**€ 493,692**	**€ 387,293**	**€106,399**
Drug acquisition	€ 206,479	€ 1,200	€ 205,279
CKD management*	€ 30,028	€ 28,717	€ 1,311
ESRD management**	€ 255,475	€ 356,151	-€ 100,676
AE management	€ 1,710	€ 1,225	€ 485

*Included CKD G1-G4; **Included pre-RRT, dialysis and transplant. AE, adverse event; CKD, chronic kidney disease; ESRD, end-stage renal disease; RRT, renal replacement therapy.

Sensitivity analyses

- The sensitivity analyses confirmed the robustness of base case results (Figure 3).

Figure 3. Deterministic sensitivity analysis: one-way sensibility analysis



CKD, chronic kidney disease; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year.

CONCLUSION

Sparsentan is a new cost-effective treatment option for IgAN patients in Spain, as it delays CKD progression and reduces the risk of ESRD, with an ICER below the €60,000/QALY threshold; supporting its value from the perspective of the Spanish NHS.

REFERENCES: **1.** Orphanet. Nefropatía por inmunoglobulina A. 2024. https://www.orpha.net/es; **2.** Fernandez Fresnedo G. Glomerulonefritis primarias. In: Lorenzo V, López Gómez J, editors. Nefrologia al día. 2019. https://www.nefrologiaaldia.org/545; **3**. Rovin BH, et al. Kidney Int. 2025;108(4):S1–71; **4.** Pitcher D, et al. Clin J Am Soc Nephrol. 2023;18(6):727-38; **5.** Jarrick S, et al. J Am Soc Nephrol. 2019;30(5):866-76; **6.** Ai Z, et al. Clin Nephrol. 2020;94(6):290–6; **7.** Le WB, et al. Nephrol Dial Transplant. 2012;27(4):1479-85; **8.** Reich HN, et al. J Am Soc Nephrol. 2007;18(12):3177–83; **9.** Donadio J, et al. Nephrol Dial Transplant. 2002;17(7):1197–203; **10.** Baxter G, et al. Nephrol Dial Transplant. 2024;39(Supplement_1); **11.** Lerma EV, et al. Kidney Med. 2023;5(9):100693; **12.** Schaufler T, et al. J Am Soc Nephrol. 2024;35(10S). **13**. European Medicines Agency. Filspari. Summary of Product Characteristics. https://ec.europa.eu/health/documents/community-register/2024/20240419162133/anx_162133_es.pdf; **14.** Rovin BH, et al. Lancet. 2023;402(10417):2077–90; **15.** Ortega Eslava A, et al. Guía de evaluación económica e impacto presupuestario en los informes de evaluación de medicamentos. 2016. https://gruposdetrabajo.sefh.es/genesis/genesis/Documents/GUIA_EE_IP_GENESIS-SEFH_19_01_2017.pdf; **16.** Comité Asesor para la Financiación de la Prestación Farmacéutica. Guía de Evaluación Económica de Medicamentos. 2023. https://www.sanidad.gob.es/areas/farmacia/comitesAdscritos/prestacionFarmaceutica/docs/20240227_CAPF_Guia_EE_definitiva.pdf; **17.** Organización Nacional de Trasplantes, Sociedad Española de Nefrología, Fundación Senefro. Registro Español de Enfermos Renales (REER). Palma de Mallorca; 2023. https://www.ont.es/wp-content/uploads/2024/08/MEMORIA-REER_2022_WEB.pdf; **17.** Stevens PE, et al. Kidney Int. 2024;105(4S):S117-314; **18**. CSL VIFOR. Market research. Data on file. 2024; **19**. Kidney Disease: Improving Global Outcomes Glomerular Diseases Work Group. KDIGO 2024 Clinical Practice Guideline for the Management of Chronic Kidney Disease. Kidney Int. 2024;105(4S); **20.** Knoop T, et al. Am J Kidney Dis. 2013;62(5):883-90; **21.** Instituto Nacional de Estadística. Cifras de población y censos demográficos. Proyecciones de población. 2024. https://www.ine.es; **22.** Consejo General de Colegios Oficiales de Farmacéuticos. Portal Farma. BOT PLUS. 2024. https://botplusweb.portalfarma.com/botplus.aspx; **23**. IQVIA. Healthcare Resource Utilization for IgAN Patients with Proteinuria in EU Markets. Data on file. 2024; **24**. Gisbert R, et al. Base de Datos de Costes Sanitarios y Ratios Coste-Efectividad Españoles: ESalud. 2024. https://esalud.oblikue.com/; 25. López-Sánchez P, et al. Nefrología. 2019;39(6):653–63; 26. Navarro González JF, et al. Nefrologia. 2024;44(6):769–920; 27. Sánchez-Escuredo A, et al. Transplant Proc. 2015;47(1):30–3; 28. Ministerio de Sanidad. Portal Estadístico Del SNS - Registro de Altas de Los Hospitales Del Sistema Nacional de Salud. CMBD. 2024. https://www.sanidad.gob.es/estadEstudios/estadisticas/cmbdhome.htm; 29. Cooper JT, et al. Health Qual Life Outcomes. 2020;18(1):310; 30. Travere Therapeutics. PROTECT Study: Confirmatory Analysis clinical Study Report. Data on file. 2024; 31. Sacristán JA, et al. Gac Sanit. 2020;34(2):189–93. 32. AEMPS. 2022. Positioning report. https://www.aemps.gob.es/medicamentosUsoHumano/informesPublicos/docs/2022/IPT_09-2022-atezolizumab.pdf; 33. European Medicines Agency. Public summary of opinion on orphan designation Sparsentan for the treatment of primary IgA nephropathy. 2021. https://www.ema.europa.eu/en/documents/orphan-designation/eu3202345-public-summary-opinion-orphan-designation-sparsentan-treatment-primary-iga-nephropathy_en.pdf.

Acknowledgment of funding: This work was supported by Vifor Pharma España S.L.U.

Poster presented at ISPOR Europe 2025, 9th-12th November 2025, Glasgow, Scotland, UK