MINISTERIO DE DEFENSA
HOSPITAL CENTRAL DE LA DEFENSA 'GÓMEZ ULLA'
HOSPITAL CENTRAL DE LA DEFENSA "GÓMEZ ULLA"

Effects of sodium-glucose cotransporter 2 inhibitors in patients with advanced chronic kidney disease in peritoneal dialysis on residual renal function: In real world data

JOSÉ DE LA FLOR MERINO[1], ESPERANZA MORAL BERRIO[2], CARMEN VOZMEDIANO POYATOS[2]

(1) SERVICIO DE NEFROLOGIA DEL HOSPITAL CENTRAL DE LA DEFENSA GOMEZ ULLA (MADRID)

(2) SERVICIO DE NEFROLOGIA DEL HOSPITAL GENERAL UNIVERSITARIO DE CIUDAD REAL (CIUDAD REAL)

INTRODUCTION

Peritoneal dialysis (PD) is a renal replacement therapy (RRT) modality in which the dialysis dose can be individually adapted according to the patients' residual kidney function (RKF). RRF is a determinant for the survival of the technique and the patient. Pharmacological strategies aimed at slowing the loss of RRF in patients on PD are limited to the use of ACEI or ARAII. Therefore, there is an unmet need for new cardiovascular and renal protective strategies for patients on PD and this is where SGLT-2 inhibitors may have an application having shown that they could be equally effective in reducing cardiovascular events and mortality in the subgroup of patients on RRT.

MATERIALS AND METHODS

Retrospective observational, single-center study in real world data; we included patients from the Peritoneal Dialysis Unit of the Hospital General Universitario de Ciudad Real, who started treatment with SGLT-2 inhibitors during the period from December 2022 to December 2023. Although treatment with SGLT-2 inhibitors has not been specifically approved for use in patients undergoing PD, off-label use is based on evidence from clinical trials confirming that the reno-cardiovascular benefits of SGLT-2 inhibitors persist regardless of GFR. All patients provided informed consent, and the reasons for off-label use of SGLT-2 inhibitors were clearly documented in their medical records.

Data on analytical and clinical parameters, residual renal function (RRF) and peritoneal membrane transport function (peritoneal equilibrium test (PET), weekly Kt/V urea and normalized protein catabolic rate (nPCR)) were retrospectively collected at months 0, 3 and 6 except for PET, which was only performed at the beginning of the inclusion of patients in the study

RESULTS

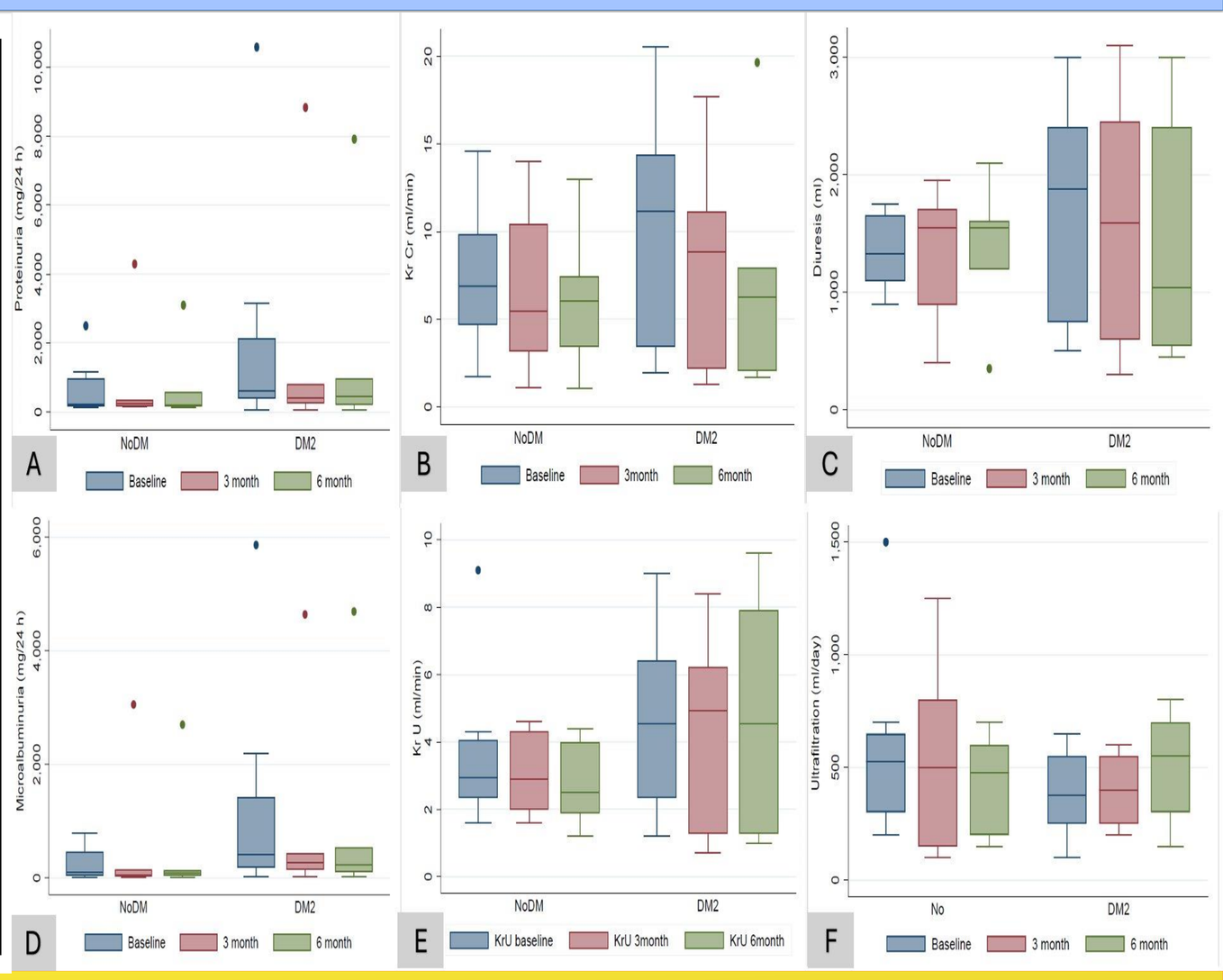
Out of 31 patients in our unit, 16 prevalent patients initiated treatment with SGLT-2 inhibitors (13 with empagliflozin and 3 with dapagliflozin) during selected period. The mean time on the PD until the start of the SGLT2-inhbitors was 21 months. Around 62.5% of the patients are male, at a mean age of 67.3 years. The baseline UF volume was higher in the non-diabetic patients (NDMP) group than in the diabetic patients (DMP) group. However, the residual diuresis volume, residual renal clearance rates of urea in urine 24 hours (KrU) and 24-hour proteinuria were higher in the DMP than in the NDMP group. During follow-up, 2 patients in the NDMP group were transplanted before completing 3 months after initiation of treatment with SGLT2 inhibitors (Table 1).

At the sixth month, patients in both groups preserved RKF (KuR and ClCr) and diuresis, with a trend towards a reduction in proteinuria (NS) and blood pressure, which decreased slightly, which had already been observed at the third month. When we compare changes at sixth month between DMP/NDMP groups, we don´t appreciated significant changes in the parameters of RRF (ClCr, KrU, and diuresis), hemodynamics (SBP and DBP), nor the volume of peritoneal UF, with the exception of HbA1C (-0.04 vs 0%; p=0.04) and a greater decrease in microalbuminuria in DMP group (decrease 189 vs 26.9 mg/24h; p= 0.05). (Figure 1)

With respect to adverse effects (AE); only 2 DMG patients presented AE; these AE led to the withdrawal of medication, one of them hypoglycemia (patient was under hypoglycemic treatment with GLP1-ra and insulin) and the other due to asthenia, general malaise, and recurrent urinary tract infection (UTI) (event that have already appeared in previous medical history).

Table 1.- Evolution of analytical parameters during follow-up

	Baseline	3 months	6 months	test trend	ANOVA
N	16	13	12		
Weight (kg)	75.7 (18.3)	73.6 (16.9)	72.8 (16.7)	0.5	0.2
Hb (g/dl)	12.2 (1.5)	11.6 (1.6)	11.8 (0.8)	0.6	0.5
Cr (g/dl)	6.6 (2.3)	7.2 (2)	7.1 (1.9)	0.4	0.9
CKD-EPI (ml/min/1.73m²)	8.3 (3.6)	7.2 (2.9)	7.5 (3.6)	0.5	0.8
Urea (mmol/ml)	139.4 (32.9)	135.8 (28)	131.8 (21.2)	0.6	0.2
Sodium (mmol/L)	137.1 (3)	136.4 (3.2)	137.1 (1.9)	0.9	0.7
Potassium (mmol/l)	4.8 (0.7)	4.4 (0.5)	4.6 (0.6)	0.3	0.1
Chlorine (mmol/l)	100.2 (5)	99 (4.2)	99.6 (3.3)	0.9	0.8
Calcium (mg/dl)	9.3 (0.8)	9 (0.4)	9.2 (0.5)	0.7	0.3
Phosphorus (mg/dl)	4.8 (1.2)	4.5 (1.1)	4.7 (1.1)	0.9	0.6
Magnesium (mg/dl)	2 (0.5)	2.2 (0.5)	2.2 (0.5)	0.3	0.7
HbA1c (%)	6 (0.9)	6 (0.7)	5.9 (0.6)	0.6	0.8
Uric Acid (mg/dl)	5.2 (1.4)	5.1 (1.2)	5.4 (1.3)	0.6	0.5
Cholesterol (mg/dl)	143.9 (29.5)	148.8 (47.1)	150.2 (47.8)	0.9	0.9
Triglycerides (mg/dl)	152.3 (81.5)	163.5 (80)	193.6 (213.9)	0.8	0.7
HDL (mg/dl)	50.1 (15.8)	46.9 (14.5)	43.5 (17.8)	0.4	0.5
LDL (mg/dl)	71.8 (17.2)	70.2 (40.3)	64.3 (27.2)	0.2	0.6
Bilirrubin (mg/dl)	0.4 (0.2)	0.4 (0.1)	0.4 (0.2)	0.3	0.6
AST (IU/L)	20.9 (11.7)	23.4 (22.1)	20.5 (15.7)	0.6	0.5
ALT (IU/L)	24 (15.8)	27.1 (27.3)	20.5 (12.4)	0.6	0.3
GGT (IU/L)	28.2 (21.7)	43.7 (55.3)	36.7 (35.5)	0.4	0.2
KT/V weekly (Lt)	2.1 (0.4)	2.1 (0.4)	2 (0.4)	0.3	0.5
nPCR (g Urea/Kg/d)	0.9 (0.2)	0.8 (0.1)	0.8 (0.1)	0.02	0.08
Ultrafiltration PD (ml/day)	425 [250-600]	500 [250-550]	475 [250-700]	0.2	0.8
KrU (ml/min)	4.1 (2.5)	3.7 (2.2)	3.8 (2.7)	0.6	0.5
Diuresis (ml/day)	1521.9 (698.8)	1448.5 (837.8)	1402.5 (810)	0.5	0.8
ClCr (ml/min)	8.7 (5.5)	7.5 (5.2)	6.7 (5.2)	0.3	0.2
MAU24horas (mg/24h)	283 [65.2-553]	139.5 [42.3-300]	114.6 [56.9-428.4]	0.4	0.9
Proteinuria (mg/24h)	489.7 [192.6-1128]	257.4 [180-500]	328.6 [179-765.4]	0.4	0.5
SBP (mmHg)	139.8 (10.2)	129.5 (5.2)	129.7 (7.0)	0.9	0.003
BBP (mmHg)	71.4 (8.1)	68.2 (6.8)	71.8(5.9)	0.7	0.06
Bicarbonate (mEq/L)	22.1 (2.1)	21.8 (1.3)	21.4 (0.8)	0.3	0.5



CONCLUSION

The use of SGLT2-inhibitors in our small sample of patients with and without DM2 appears to be safe and effective to preserve RKF.

XIX REUNIÓN
21-22 de junio 2024
Hotel Barceló Occidental Aranjuez
Sociedad Madrileña de Nefrología