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engaged in other vascular calcifications associated with CKD. We found no correlation with concomitant cardiac calcifications or CKD-MBD related biochemical changes. We found that AVF calcifications rather associate with HD-related factors (longer AVF duration and the presence of AVF stenosis). We suggest that periodic screening via ultrasound may be an easy method to diagnose AVF calcifications.

MO791 VASCULAR ACCESS OF INCIDENT HEMODIALYSIS PATIENTS WITH DIABETES MELLITUS IN CATALONIA: ANALYSIS OF DATA FROM THE CATALAN RENAL REGISTRY (1997–2020)

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BACKGROUND AND AIMS: End-stage kidney disease (ESKD) due to diabetes mellitus (DM) is the main known cause of kidney replacement therapy initiation in Catalonia.

To analyse the use and results of vascular access (VA) in incident haemodialysis (HD) patients (pts) with DM types 1 (DM-1) and 2 (DM-2) over time in Catalonia
METHOD: Data from the Catalan Renal Registry of 14 954 ESKD pts >18 years of age starting HD therapy were examined for a 23-year period.
RESULTS: The characteristics of DM-2 pts ($n = 4242$) were different compared with DM-1 pts ($n = 456$) or non-DM pts ($n = 10\,256$) regarding age (69.0 ± 9.8 versus 50.5 ± 14.5 versus 64.2 ± 15.3 years), cardiovascular disease (76.7% versus 60.3% versus 46.5%), overweight (body mass index ≥ 25 kg/m^2: 68.4% versus 44.4% versus 50.4%) and statin use (52% versus 41.1% versus 33.8%) (for all comparisons, $P < 0.001$).

Regarding the first VA used for starting HD, no differences were found in the percentage of fistulae AVF (44.7% versus 45.4% versus 46.2%, $P = 0.27$) but the distribution of tunnelled (40.8% versus 36.5% versus 34.7%) and non-tunnelled (59.2% versus 63.5% versus 65.3%) catheter was significant different in DM-2 pts ($P < 0.001$). Compared to non-DM pts (reference), the odds ratio for starting HD though an AVF, by using an adjusted multivariate logistic regression analysis, was 0.88 [95% confidence interval (95% CI): 0.67–1.15, $P = 0.35$) and 0.90 (95% CI: 0.81–0.99, $P = 0.04$) for DM-1 and DM-2 pts, respectively.

By using a multivariate competing risk model, the hazard ratio (HR) of receiving a kidney graft (KG) within 5 years from starting HD, depending on the first VA used to start HD (AVF versus catheter), was: 2.14 (95% CI: 1.98–2.30, $P < 0.001$) for non-DM pts, 2.32 (95% CI: 1.63–3.30, $P < 0.001$) for DM-1 pts and 1.95 (95% CI: 1.65–2.30, $P < 0.001$) for DM-2 pts. Compared with non-DM pts starting HD by AVF (reference), the HR of receiving a KG within 5 years from starting HD though an AVF was 1.02 (95% CI: 0.76–1.37, $P = 0.85$) for DM-1 pts and 0.46 (95% CI: 0.40–0.53, $P < 0.001$) for DM-2 pts. Compared with non-DM pts starting HD by catheter (reference), the HR of receiving a KG within 5 years from starting HD through a catheter was 1.11 (95% CI: 0.90–1.38, $P = 0.29$) for DM-1 pts and 0.42 (95% CI: 0.38–0.47, $P < 0.001$) for DM-2 pts.

The HR of pts' survival within 5 years from starting HD, by applying a multivariate competing risk model depending on the first VA used to start HD (AVF versus catheter), was: 1.88 (95% CI: 1.76–2.01, $P < 0.001$) for non-DM pts, 1.58 (95% CI: 1.17–2.15, $P = 0.003$) for DM-1 pts and 1.54 (95% CI: 1.41–1.68, $P < 0.001$) for DM-2 pts. Compared with non-DM pts starting HD by AVF (reference), the HR of death within 5 years from starting HD through an AVF was 1.02 (95% CI: 0.83–1.24, $P = 0.81$) for DM-1 pts and 1.32 (95% CI: 1.23–1.41, $P < 0.001$) for DM-2 pts. Compared with non-DM pts starting HD with catheter (reference), the HR of death within 5 years from starting HD through a catheter was 1.22 (95% CI: 0.95–1.56, $P = 0.12$) for DM-1 pts and 1.70 (95% CI: 1.55–1.85, $P < 0.001$) for DM-2 pts.
CONCLUSIONS: i) The VA profile of incident DM-2 pts was different compared with DM-1 and non-DM pts due to the different types of catheter used for starting HD. ii) DM-2 pts showed an 11% lower probability of initiating HD through an AVF compared with non-DM pts. iii) Incident DM-1 pts with AVF and DM-2 pts with catheter showed the maximum and minimum probability to receive a KG within 5 years from starting HD, respectively. iv) Incident DM-2 pts with catheter and non-DM pts with AVF showed the maximum and minimum risk of dying within 5 years from starting HD, respectively.

MO792 VALIDATION AND APPLICABILITY OF AN INNOVATIVE MONITORING SYSTEM FOR VASCULAR ACCESS IN HAEMODIALYSIS—A MULTICENTRE STUDY

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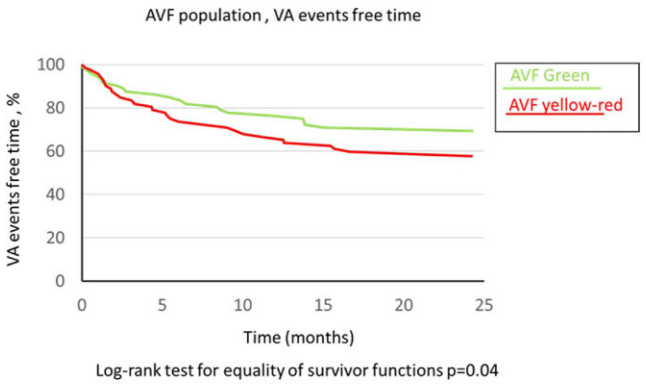
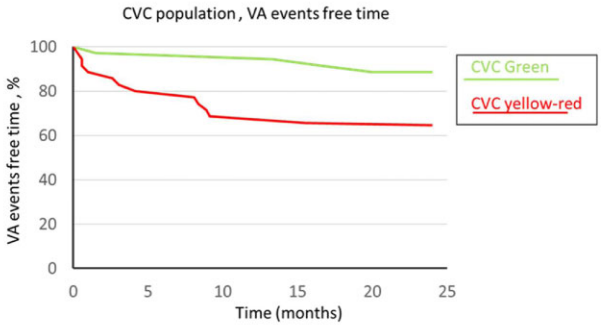
BACKGROUND AND AIMS: Routine systems for monitoring vascular access (VA) performance are lacking. We recently showed that with a VA triage system it is possible to improve the average value of a number of HD efficiency parameters and that the triage score was associated with clinical outcomes [1]. The triage categorization is generated monthly by a scoring system which is based on a number of parameters (blood flows, VA pressure values, end HD circuit clots and a dedicated score of the external VA examination) recorded at each session by the staff and by the KT/V value recorded once every month. According to threshold values, each VA is classified as Green (G), Yellow (Y) or Red (R), thus attracting the attention of the staff. In our open-label single centre study, with 3 years of follow-up, the average VA scores improved significantly and G VA associated with lower mortality, compared to the Y and R VA.

To validate our triage system with a multicentre, blinded approach in a large number of patients. The primary outcome was to evaluate if the triage identifies VA with an increased rate of complications; the secondary outcome was to verify the association of G VA score with better clinical outcomes.
METHOD: In this interventional prospective multicentre study, each centre used the electronic spreadsheet without knowledge of the generated score and triage. After 6 months of system implementation, 2 years of follow-up (1 January 2020–1 December 2021) were planned to record VA-related events. Two external reviewers evaluated the records. A minimum of 3 months VA follow-up was necessary for patients' enrolment.
RESULTS: From 18 HD centres we enrolled 757 patients, aged 64.5 ± 15.5 years; x/y M/F; 27% diabetics; HD since 24.4 ± 32.4 months; 369 (48.7%) with arteriovenous fistula (AVF) and 388 (51.3%) with permanent central venous catheter (CVC). During 11.4 ± 5.6 months of follow-up (range 3–23), 108 537 HD sessions were recorded on the triage electronic spreadsheet, with 214 total clinical events and an event-free time of 224.5 ± 172 days (range 4–713). The VA-related events were 150 (70.1%) with an event-free time of 230 ± 160 days (range 11–713). As of today, we have the association of VA triage with VA events in a subgroup of 300 patients (66.1 ± 11.7 years; HD vintage 28 ± 18; diabetes 27.6%; 180 with AVF and 120 had CVC) who are not different from the remaining 457. In this subgroup, 54% had G VA triage, 39% Y and 7% R. In the subgroups distinguished by VA type, AVF cases (64.5 ± 12.1 years; HD since 30.3 ± 27.2; 24.4% diabetics) were triaged as G in 54%, Y in 41% and R in 5%, while CVC cases (66.5 ± 11.7 years; HD since 28.8 ± 36.5 months; 34.3% diabetics) were G in 54%, Y in 34% and R in 11%. 83 patients had VA-related events VA during 16.3 ± 2.2 months of follow-up (range 3–23), with an event-free time of 237.8 ± 195.9 days. Figure 1 shows how both AVF and CVC patients, stratified into only two triage groups (G versus Y and R together) according to their average triage, had significantly different time-free from events, which was higher in both populations (AVF $P = 0.04$; CVC $P = 0.001$) in the green triage groups.



Log-rank test for equality of survivor functions p=0.04



Log-rank test for equality of survivor functions p=0.001

CONCLUSION: Our VA triage system identifies 40% of vascular accesses as yellow-red triage, thus deserving clinical surveillance. This score has increased the rate of clinical complications which, according to the time survival curve could be detectable roughly 237.8 days before the event developed.

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MO793 AVF BLOOD FLOW REDUCTION IN THE OLDER ADULTS

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BACKGROUND AND AIMS: Older adults are approximately 40% of all prevalent HD patients (ERA-EDTA Annual report, 2019). Cardiovascular disease is the leading cause of death in this cohort. It is well-known that the cardiotoxic effect of arterio-venous fistula (AVF) is fully realized when cardio-fistula recirculation (CFR) is above 20–30%. We believe that the reduction of AVF blood flow (Qa) in the elderly is often less effective than in younger patients.

To evaluate the outcomes of Qa reduction in the elder and the younger HD patients.

METHOD: The prospective cohort study included 21 patients > 60 years and 36 patients <60 years: the median age was 74 years [interquartile range (IQR) 69; 78, min-max 64–81] and 41 years (IQR 35; 45, min-max 31; 55), respectively. In all patients, glomerular filtration rate (GFR) before reduction was more than 25%: 32.8% (IQR 29.2; 35.1, min-max 27.3; 38.9) and 33% (IQR 31; 35.125, min-max 27.1; 39.3), respectively. Qa reduction was performed by banding of the para-anastomotic AVF segment with intraoperative control (Doppler ultrasonography) until reaching Qa of 1.5 L/min or less.

RESULTS: In all patients, we noted a significant ($P < 0.0001$ in all cases) decrease in Qa as a result of the banding: in older adults from 2.1 L/min (IQR 1.9; 2.4, min-max 1.8; 2.8) to 1.2 L/min (IQR 1; 1.4, min-max 0.8; 1.5), delta Qa was −1 L/min (IQR −1.2; −0.9, min-max −1.5; −0.7), in younger patients from 2.8 L/min (IQR 2.5; 3.1, min-max 1.9; 3.5) to 1.3 L/min (IQR 1.1; 1.4, min-max 0.9; 1.5), −1.5 L/min (IQR −1.7; −1.3, min-max −2.3; −0.9], respectively.

In both elder and younger patients, we noted a significant decrease in CFR—Figure 1. However, after Qa reduction, only 5/21 elderly patients had CFR value less than 20%. Thus, 17/21 patients had CFR in the 'gray zone' —20–30%: 22.8% (IQR 21.85; 27.3, min-max 21; 29.2).

In younger patients, 25/36 had CFR < 20% after Qa reduction, while 11 stayed in the 'gray zone': 21.15% (IQR 20.575; 22.3, min-max 20.3; 23.4).

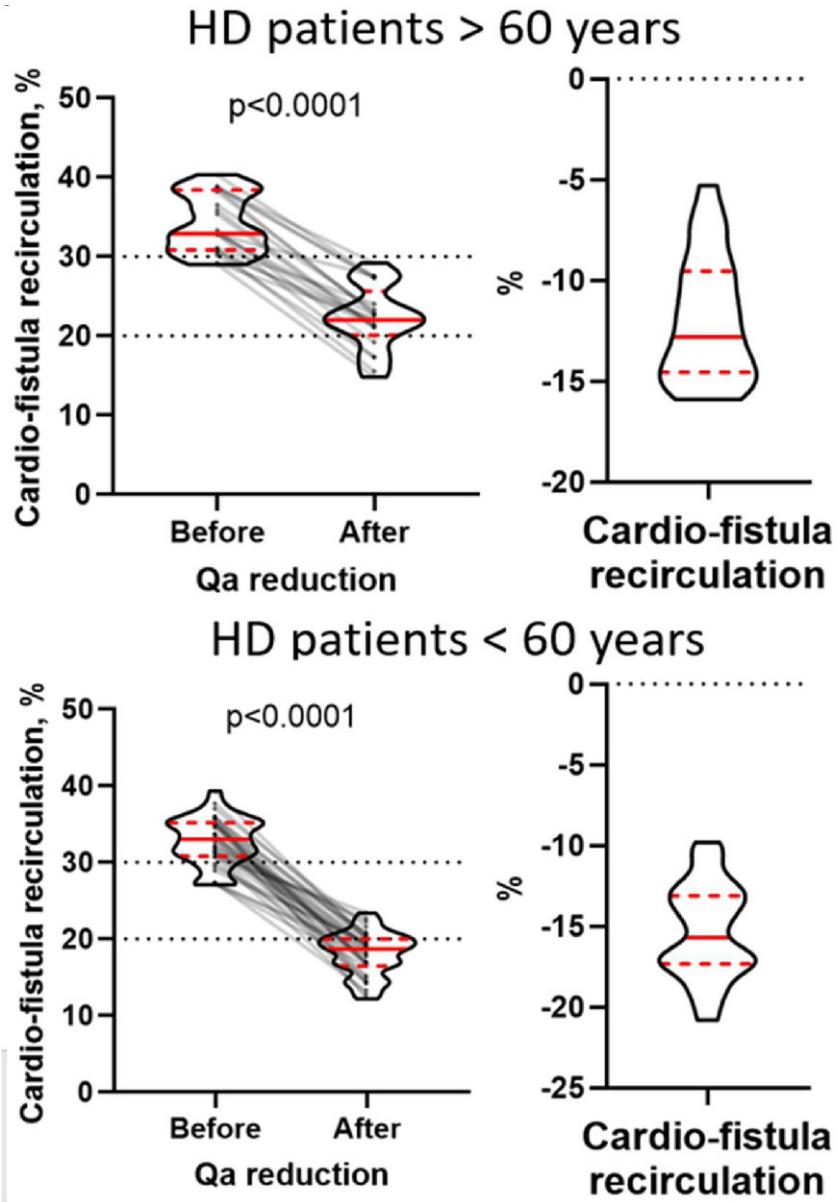

FIGURE 1: Changes in cardio-fistula recirculation as a result of Qa reduction in HD patients >60 and <60 years old.