

Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you '**Physician connect**' which contains latest and interesting news in the field of Medicine

This issue contains

- Timing of dialysis initiation to reduce mortality and cardiovascular events in advanced chronic kidney disease: nationwide cohort study
- Association between measurements of central blood pressure and target organ damage in high-risk patients
- Pyostomatitis Vegetans: A Case Report

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

Timing of dialysis initiation to reduce mortality and cardiovascular events in advanced chronic kidney disease: nationwide cohort study

More than 3 million people with renal failure around the world require dialysis to stay alive. Dialysis treatment has a significant impact on patients' daily lives. The importance of determining the dialysis time cannot be overstated.

The aim of this study was to find the best estimated glomerular filtration rate (eGFR) to start dialysis in patients with severe chronic renal disease.



This was an observational cohort study with 10290 incident patients with advanced chronic kidney disease. To minimise immortal time bias, lead time bias, and survivor bias, the cloning, censoring, and weighing approach was used to simulate the tight design criteria of a clinical study. For 15 dialysis initiation strategies with eGFR values between 4 and 19 mL/min/1.73 m² in increments of 1 mL/min/1.73 m², a dynamic marginal structural model was used to estimate adjusted hazard ratios and absolute risks for five-year all-cause mortality and major adverse cardiovascular events (composite of cardiovascular death, non-fatal myocardial infarction, or non-fatal stroke) using a dynamic marginal structural model. The reference was an eGFR between 6 and 7 mL/min/1.73 m² (eGFR6-7).

3822 patients started dialysis, 4160 died, and 2446 had a severe adverse cardiovascular event among 10290 incident patients with advanced chronic renal disease (median age 73 years; 3739 (36%) women; median eGFR 16.8 mL/min/1.73 m²). Mortality was shown to have a parabolic relationship, with eGFR15-16 having the lowest risk. Compared to starting dialysis at eGFR6-7, starting at eGFR15-16 was associated with a 5.1 percent (95 percent confidence interval 2.5 percent to 6.9 percent) lower absolute five-year mortality risk and a 2.9 percent (0.2 percent to 5.5 percent) lower risk of a major adverse cardiovascular event, corresponding to hazard ratios of 0.89 (95 percent confidence interval 0.87 to 0.92) and 0.94 (0.91 to 0.98). Over the course of five years of follow-up, this 5.1 percent absolute risk difference resulted in a 1.6-month average delay in mortality. Dialysis, on the other hand, would have to begin four years early.

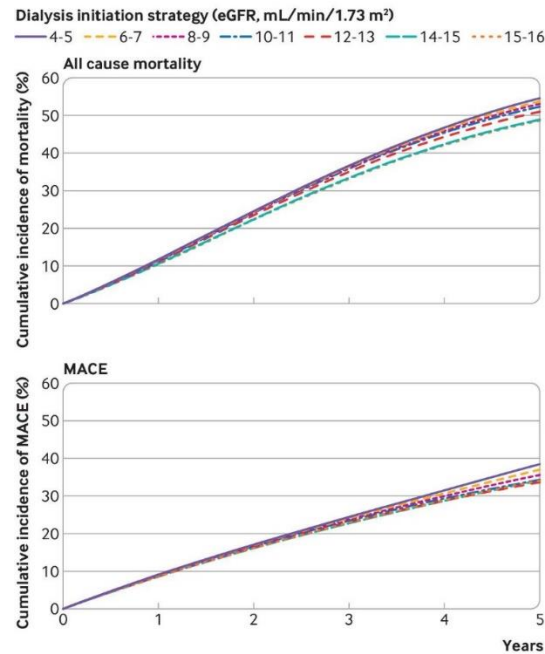


Figure 1: Timing of dialysis initiation to reduce mortality and cardiovascular events in advanced chronic kidney disease: nationwide cohort study

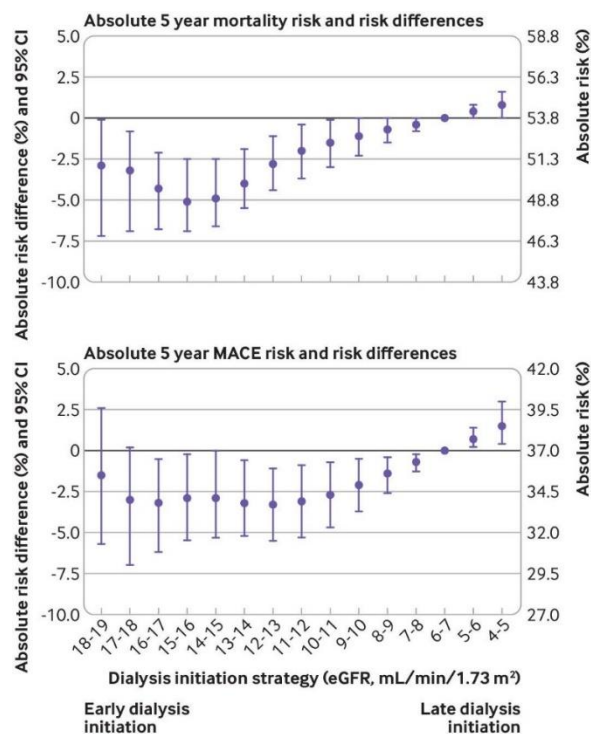


Figure 2: Five year absolute risks and risk differences for mortality (top) and major adverse cardiovascular events (MACE) (bottom) associated with initiating dialysis with estimated glomerular filtration rate (eGFR) values

The hazard ratios for all cause mortality were 0.96 (0.94 to 0.99) and 0.97 (0.94 to 1.00) when emulating the intended strategies of the Initiating Dialysis Early and Late (IDEAL) trial (eGFR10-14v eGFR5-7) and the achieved eGFRs in IDEAL (eGFR7-10v eGFR5-7), respectively, which are consistent with the findings of the randomised IDEAL trial.

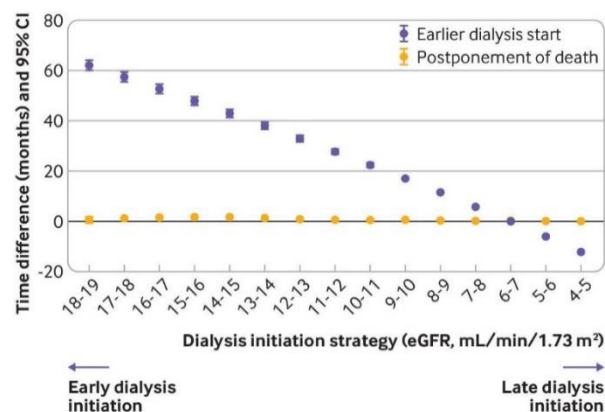


Figure 3: Trade-off between additional survival time (five year restricted mean survival time difference) and time that dialysis has to be initiated earlier, for dialysis initiation strategies with estimated glomerular filtration rate (eGFR) values .

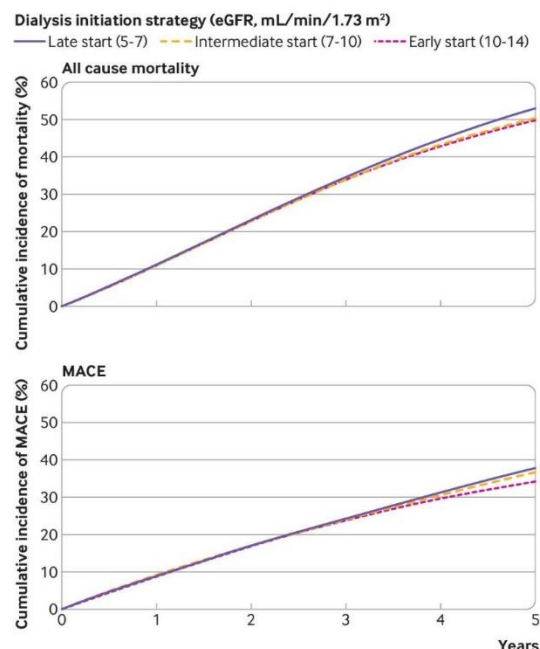


Figure 4: Weighted, standardised cumulative incidence curves for mortality (top) and major adverse cardiovascular events (MACE) (bottom) for early, intermediate, and late dialysis initiation. eGFR=estimated glomerular filtration rate



In conclusion, early dialysis initiation was related with a slight reduction in mortality and cardiovascular events, the cost of a significantly longer dialysis time may offset this benefit.

Reference:

Islam N, Jdanov D A, Shkolnikov V M, Khunti K, Kawachi I, White M et al. Effects of covid-19 pandemic on life expectancy and premature mortality in 2020: time series analysis in 37 countries BMJ 2021; 375 :e066768

Association between measurements of central blood pressure and target organ damage in high-risk patients

Hypertension is a global burden and one of the key risk factors for cardiovascular disease (CVD). Brachial blood pressure (BrBP) has been acknowledged as the gold standard in the diagnosis, risk classification, and therapy monitoring of hypertension patients due to its ease of measurement in a professional setting. Strong evidence also suggests that having a higher BrBP at the start is highly linked to future CVD outcomes. The role of central blood pressure (CBP) in the treatment of hypertension has recently been highlighted. CBP has been recommended as a more reliable indication of target organ damage (TOD) and CVD risk than BrBP.

Objective:

This study used four CBP measurements and nine TOD parameters in patients with established CVD or multiple risk factors to look into the association between CBP and TOD.

Methods:

A total of 148 patients were prospectively enrolled who had atherosclerotic cardiovascular disease or its numerous risk factors. CBP was determined by radial artery applanation tonometry. Left ventricular mass index, relative wall thickness, septal e' velocity, septal E/e' , brachial-ankle pulse wave velocity, ankle-brachial index, estimated glomerular filtration rate, urine protein, and obstructive coronary artery disease were the nine TOD parameters examined.

Results:

The average age of the study participants was 67.1 ± 9.0 years, with 108 (73%) of them being male. Central pulse pressure (CPP) was linked to the most TOD parameters out of the four CBP measurements (systolic, diastolic, mean, and pulse pressures). The number of TOD rose as CPP increased ($P = 0.010$), but this relationship was not shown in other CBP measurements ($P > 0.05$ for each).

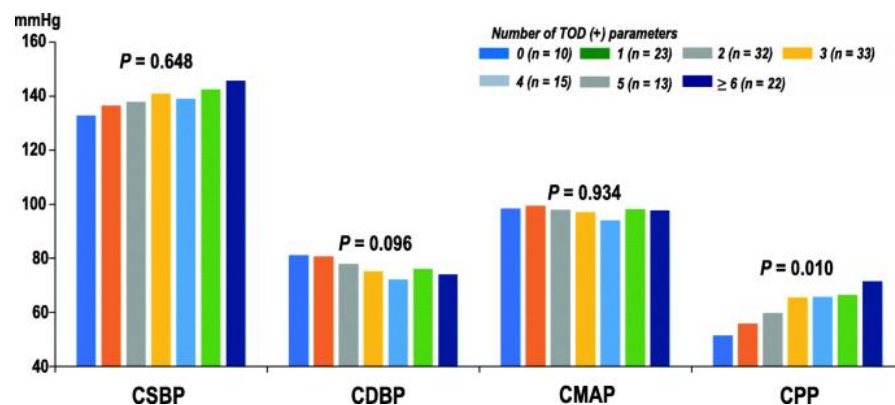


Figure 5: Association between central blood pressure and the number of TOD parameters. CSBP, central systolic blood pressure; CDBP, central diastolic blood pressure; CMAP, central mean arterial pressure; CPP, central pulse pressure; TOD, target organ damage.

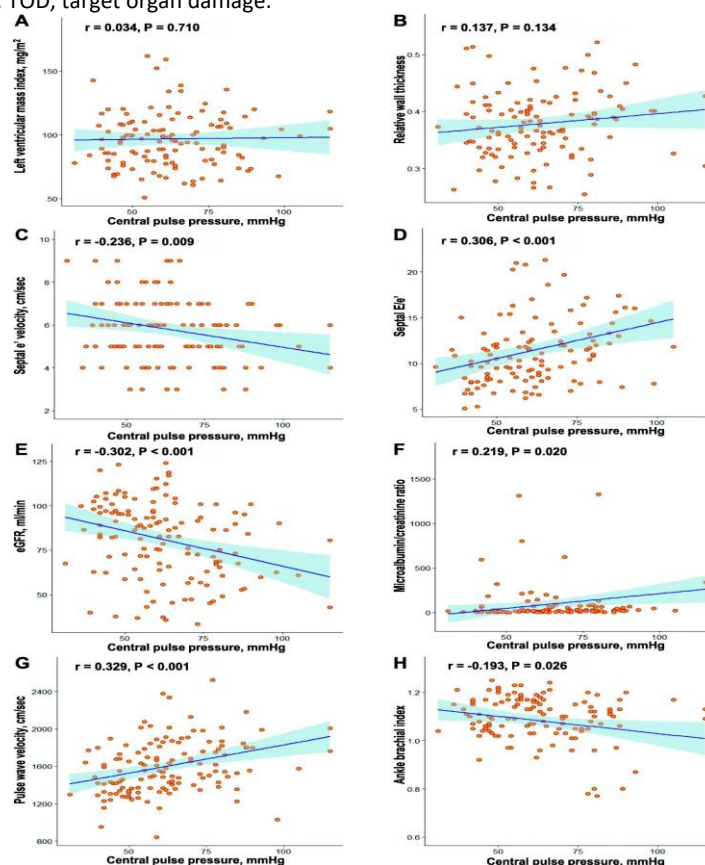


Figure 6: Correlations between central pulse pressure and various types of target organ damage

In patients with atherosclerotic cardiovascular disease or multiple risk factors, CPP demonstrated a greater connection with TOD than other CBP parameters. CPP measurement without invasiveness could be a useful tool for risk stratification in high-risk individuals.

Reference:

Jeon, KH., Kim, HL., Lim, WH. *et al.* Associations between measurements of central blood pressure and target organ damage in high-risk patients. *Clin Hypertens* **27**, 23 (2021). <https://doi.org/10.1186/s40885-021-00179-x>

Pyostomatitis Vegetans: A Case Report

Pyostomatitis vegetans is an uncommon oral mucosal disorder that is frequently linked to inflammatory bowel illness.

A 50-year-old woman came to the dental clinic with tongue and inner cheek soreness that had been bothering her for ten days. She was



diagnosed Crohn's disease, for which she had been treated with prednisone and mesalamine in the past. She had no gastrointestinal or systemic symptoms at

the time of her presentation. On physical examination, she exhibited several painful, superficial erosions on the dorsal tongue and oral mucosa that joined to form linear "snail track" formations. There were no lesions on the skin. An absolute eosinophil level of 870 per cubic millimetre was discovered in laboratory investigations (reference range, 50 to 500). Intraepithelial microabscesses with neutrophils and eosinophils were seen in a biopsy sample of the dorsal tongue, compatible with a diagnosis of pyostomatitis vegetans. The patient was referred to a gastroenterologist for a checkup, and her bowel illness was confirmed to be stable. Topical glucocorticoids and benzocaine were used to treat the mouth lesions. Her symptoms had resolved after a month of follow-up, and they had not recurred since.

Reference: Petruzzi M, Della Vella F. Pyostomatitis Vegetans. N Engl J Med. 2021 Nov 25;385(22):e77.



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