Perioperative β-Blockade

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Perioperative β-blockade increased from 25.3 percent for patients with no revised cardiac risk index factors to 71.3 percent for those with four or more risk factors. The overall 30-day mortality was 1.1 percent, and cardiac mortality was 0.9 percent.

On propensity-matched analysis, perioperative β-blockers were associated with lower mortality among higher-risk patients. The relative risk (RR) was 0.63 for patients with two revised cardiac risk index factors, with a number needed to treat (NNT) of 10. For patients with the risk factors, the RR was 0.54 and the NNT 41; for those with four or more risk factors, RR was 0.40 and the NNT 18.

Perioperative β-blockade reduced mortality risk only for patients undergoing nonvascular surgery. The nonvascular surgery group also had a significant reduction in cardiac mortality: RR 0.67, NNT 33.


Nasal MRSA Carriage Predicts Worse Outcomes in Hemodialysis Patients

Even without clinical signs of infection, hemodialysis patients who are methicillin-resistant Staphylococcus aureus (MRSA) carriers are at increased risk of death, reports a study in BMC Nephrology.

The prospective cohort study included 289 hemodialysis outpatients at an urban dialysis unit. All underwent nasal swabs for MRSA culture at admission to the unit, after transfer from another unit, or on readmission after a hospital stay. Patients found to be nasal MRSA carriers were kept in a separate ward and treated with nasal mupirocin; appropriate treatments for extranasal (throat and skin) MRSA colonization were used as well. Clinical characteristics and outcomes were compared for MRSA carriers versus noncarriers.

Nasal MRSA carriage was identified in 11.7 percent of patients. About one-third of nasal MRSA carriers also had extranasal colonization. Patients with a history of cancer and those with increased comorbidity were more likely to be nasal MRSA carriers. Traditional MRSA risk factors were not significant, nor were markers of inflammation or malnutrition.

During follow-up, death occurred in 55.9 percent of patients whose test results for MRSA were positive versus 37.4 percent of MRSA-negative patients. The mortality difference was significant on Kaplan-Meier analysis. Mupirocin treatment eradicated nasal MRSA colonization in 75.3 percent of patients. For patients in whom eradication therapy was unsuccessful, all-cause mortality exceeded 85 percent.

Nasal MRSA carriage is a known risk factor for bacteremia and death in various patient groups. There is ongoing controversy regarding its clinical impact on patients receiving long-term hemodialysis.

About one of eight hemodialysis patients may be nasal MRSA carriers, the new study suggests. These patients are at increased risk of death during follow-up, especially if mupirocin is not effective in eradicating MRSA. The authors call for further study of nasal MRSA colonization as an independent outcome predictor in hemodialysis patients [Schmid H, et al. Persistent nasal methicillin-resistant staphylococcus aureus carriage in hemodialysis outpatients: a predictor of worse outcome. BMC Nephrol 2013; 14:95].

Simultaneous Pancreas-Kidney Transplantation May Reverse Microvascular Damage in Patients with Type 1 Diabetes

In patients with type 1 diabetes and diabetic nephropathy (DN), microvascular structural abnormalities are reversed within 1 year after simultaneous pancreas-kidney transplantation (SPK), reports a study in the American Journal of Transplantation.

The investigators used sidestream dark field (SDF) imaging—an emerging technology for noninvasive visualization of the microcirculation—to study the microvascular morphology of the oral mucosa. Imaging studies were performed in various groups, including 26 patients with DN, 38 patients undergoing SPK, 15 patients with type 1 diabetes, 15 DN patients undergoing kidney transplantation, and 20 healthy control individuals.

The study also included longitudinal SDF imaging in 21 patients with DN undergoing SPK. The microvascular findings were correlated with markers of endothelial dysfunction, including angiopeptin-1 and angiopeptin-2 (Ang-1 and Ang-2) and soluble thrombomodulin.

The SDF imaging studies showed increased capillary tortuosity in the DN patients and in the type 1 diabetes group: 1.83 and 1.55, respectively. This value was significantly reduced in patients undergoing SPK, 1.31, compared with no change after kidney transplantation, 1.64. Levels of soluble thrombomodulin and the Ang-2/Ang-1 ratio also normalized after SPK, compared with no change after kidney transplantation. The reversal of capillary tortuosity and decreased markers of endothelial dysfunction were observed within 12 months after SPK.

Simultaneous pancreas-kidney transplantation is an advanced treatment alternative for patients with type 1 diabetes and DN or other forms of microvascular disease. This study, using SDF imaging, suggests that reversal of systematic microvascular abnormalities occurs within 1 year after SPK in patients with DN. No such effect is noted in patients undergoing kidney transplantation only [Khalirou M, et al. Microvascular damage in type 1 diabetic patients is reversed in the first year after simultaneous pancreas-kidney transplantation. Am J Transplant 2013; 13:1272–1281].

MMF for Lupus Nephritis Patients with Poor Kidney Function

For lupus nephritis patients with a very low eGFR, mycophenolate mofetil (MMF) may lead to faster recovery of kidney function compared with cyclophosphamide, reports a study in the American Journal of Kidney Diseases.

The study was a post hoc analysis of data from patients enrolled in the Aspreva Lupus Management Study, a large randomized trial of MMF versus cyclophosphamide for lupus nephritis. Of 570 patients enrolled, 32 had severely decreased kidney function: eGFR less than 30 mL/min/1.73 m2. Of those, 20 received MMF, target dosage 3 g/d; and 12 received cyclophosphamide, given in monthly intravenous pulses of 0.5 to 1.0 g/ m2. Response was defined as decreased proteinuria and stabilization or improvement in serum creatinine levels.

Over 24 weeks, the response rate was similar between groups: 20.0 percent with MMF and 16.7 percent with cyclophosphamide. However, MMF was associated with more rapid improvement in kidney function, with a between-group difference of 1.51 mL/min/1.73 m2 per week. Serious adverse events occurred in 45.0 percent of patients with MMF versus 63.6 percent with cyclophosphamide.

Randomized trials suggest that oral MMF is an effective alternative to intravenous cyclophosphamide for the treatment of lupus nephritis. It has been unclear whether MMF is adequate therapy for patients with very low kidney function.

The new analysis finds similar response rates—but faster improvement in renal function—with MMF for lupus nephritis patients with low eGFR, compared with cyclophosphamide. The authors hope that their hypothesis-generating study will lead to further studies of the efficacy and safety of MMF for this group of patients [Walsh M, et al. Mycophenolate mofetil or intravenous cyclophosphamide for lupus nephritis with poor kidney function: a subgroup analysis of the Aspreva Lupus Management Study. Am J Kidney Dis 2013; 61:710–715].

Something to Say?

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