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PS34

Comparison of Renal Perfusion Solutions During Suprarenal Aortic Aneurysm Repair

Yamume Tshomba[1], Denise Ferrari[1], Germano Melissano[1], Laura Pasin[2], Andrea Kahlberg[1], Luca Apruzzi[1], Enrico M. Marone[1], Roberto Chiesa[1]. [1]Vascular Surgery, San Raffaele Scientific Institute, Università Vita-Salute, Milan, Italy; [2]Department of Anesthesia and Intensive Care, San Raffaele Scientific Institute, Università Vita-Salute, Milan, Italy

Objectives: To determine whether renal perfusion with cold crystalloid solution enriched with histidine-tryptophan-ketoglutarate (Custodiol) provides better protection against renal ischemic injury than cold lactated Ringer's solution in patients undergoing suprarenal aortic aneurysm (sAAA) open repair.

Methods: We reviewed 256 consecutive patients undergoing sAAA open repair between 1993 and 2013. In 181 cases, direct perfusion of at least one renal artery was performed. Among these patients, 87 had cold renal perfusion with Ringer's lactate solution and 94 with Custodiol solution. Propensity score matching based on baseline clinical variables that were expected to influence renal outcomes was performed to correct for any bias that may have been associated with the use of Custodiol. Postoperative acute renal dysfunction (ARD) stratified in five classes according to postoperative serum creatinine elevation and need for dialysis was compared in the two groups, and independent predictors of ARD were identified at multivariate analysis.

Results: After propensity score matching we were able to match 74 Custodiol cases one-to-one to those receiving perfusion with lactated Ringer's solution. Overall 30-day mortality was 3.4%, temporary hemodialysis or continuous venovenous hemofiltration was 4.7%, and dialysis at discharge was 2.7%. Freedom from ARD >2 (>100% elevation in baseline ceratinine level) and from the need for dialysis were significantly increased in the Custodiol group ($P = .007$ and $P = .04$, respectively). At multivariate analysis, Custodiol perfusion and clamping time were the independent predictors of non-ARD >2.

Conclusions: In this series of sAAA repair, perfusion with (4°C) Custodiol offered superior renal protection when compared with (4°C) Ringer's lactate. Larger series and/or randomized trials are needed to confirm this finding.

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PS36

Type II Endoleak Prevention With Coil Embolization During Endovascular Aneurysm Repair for At-Risk Patients: Does the Benefit Warrant the Price?

Dominique Fabre[1], Philippe Brenot[1], Olivier Planché[1], Frederic Cochennec[2], Elie Fadel[1], Sacha Mussot[1], Claude Angel[1]. [1]Vascular Surgery, Marie Lannelongue Hospital, Le plessis Robinson, France; [2]Henri Mondor Hospital, Creteil, France

Objectives: To evaluate the level of endoleak and the decrease in size of infrarenal abdominal aortic aneurysm (AAA) after coil embolization during endovascular aneurysm repair (EVAR) for patients at risk for type II endoleak.

Methods: Between 2009 and 2013, 80 patients with AAA and a high risk for type II endoleak were treated with coil embolization of the aneurysm sac during EVAR. Embolization was performed using a microcatheter placed between the stentgraft and the aortic aneurysm wall. Follow-up using computed tomography (CT) scans (first month, 6 months, 1 year, and 1 years) was obtained to evaluate presence of endoleaks and the size of the aneurysm sac.

Results: The mean number of coils used for embolization was 11 (range, 8-14 coils). Technical success was achieved in all patients. Only one of 80 patients (1.2%) presented a type II endoleak on follow-up CT scans. Statistical analysis (paired *t*-test) showed a significant decrease of the aneurysm diameter at 6 months ($P = .036$), 1 year ($P = .004$), and 2 years ($P = .001$). The mean follow-up period after treatment was 13 months (range, 1-29 months). There were no procedure-related complications and two secondary interventions.

Conclusions: Coil embolization of the aneurysm sac during EVAR for patients at risk for type II endoleak is technically feasible and clinically effective in preventing type II endoleak. This led to a rapid decrease in size of AAA and low level of secondary intervention.

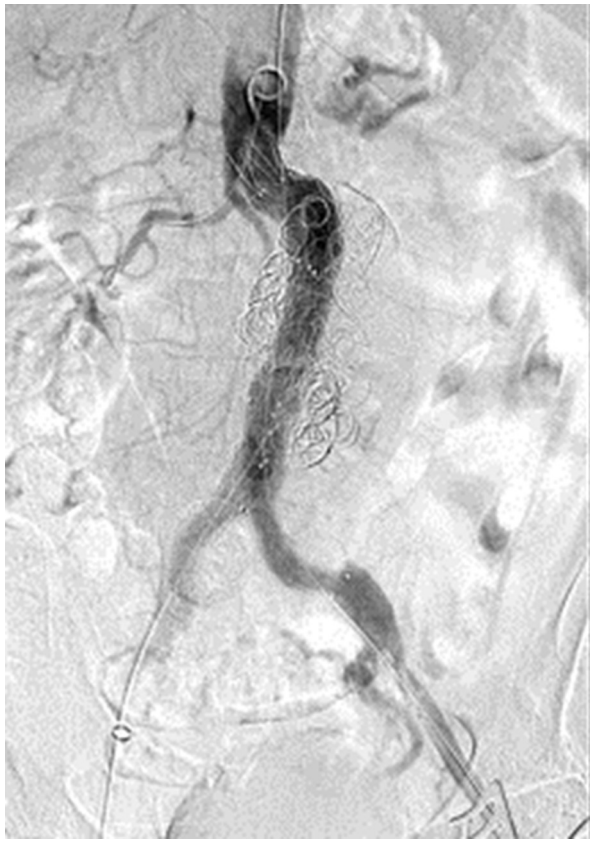

Fig.