

Superior Short-term Patency of Stents Over Balloons in Infrapopliteal Artery Disease

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Introduction

The optimal strategy for revascularization in below-the-knee (BTK) chronic limb-threatening ischemia (CLTI) remains debatable. Novel devices such as drug-eluting (paclitaxel) balloons (DEB), stents, atherectomy devices are used infrequently BTK. We compare the total re-occlusion rates between these interventions.

Methods

Retrospective chart review of 97 patients who underwent BTK percutaneous intervention in 2015-2020 at our hospital. Descriptive statistics were used; continuous variables were summarized as mean values with standard deviations, and categorical variables were summarized as counts and percentages.

Results

Out of the 97 patients, 73.4% met documented Rutherford category V-VI on initial admission, 53.6% patients were readmitted to our facility with Rutherford category IV-VI at 8 +/- 8 months from initial intervention. Of the interventions performed on the 208 arteries, plain balloon angioplasty accounted for 57.7%, DEB 2.9%, atherectomy [directional (HawkOne, SilverHawk, TurboHawk)[™] or orbital (DiamondBack 360)[™]] with adjunctive PTA (A+PTA) 28.8%, stent 8.7% or atherectomy with adjunctive stent (A+S) 2.9%. Of the 24 stents placed, 13 were bare-metal stent (BMS) and 11 drug-eluting (everolimus) stent (DES). Within 12 months from initial intervention, total re-occlusion post PTA occurred at 4 (+/-3) months, A+PTA 3.7 (+/-2) months, and stents 8 (+/-3) months (p= 0.015, F= 4.6). When comparing stents, restenosis was 53.8% in BMS versus 18.2% in DES (p= 0.09) at 6 (+/-3) months readmission. Within 30 months from initial intervention, re-occlusion rates were 58.1% for uncoated balloons, 33.3% A+PTA, 60% DEB, 50% stents and 50% A+S (p= 0.27). 22 patients were not readmitted again.

Conclusion

These preliminary data suggest superior short term (< 1-year) patency of stents over PTA and A+PTA , BTK. PTA appears to re-occlude more than stents. But, as adjunctive to atherectomy, restenosis may be lower than PTA alone. DES seems to have superior patency over BMS. Further studies needed to compare clinical outcomes.

References:

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