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PERCUTANEOUS ANGIOPLASTY AND STENTING AS AN ALTERNATIVE TO SURGERY IN THE TREATMENT OF RENAL ARTERY STENOSIS

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From April 1995, 23 stents were deployed in 23 renal arteries in 17 percutaneous transluminal angioplasty (PTA) procedures on 17 patients. Mean age of the patients was 64 ± 12 years (range 41-76). There were 12 male and 5 female. Six patients had bilateral renal artery stenosis. The etiology was atherosclerotic and ostial in location in 16 patients. In 1 patient, with fibromuscular dysplasia, the site of stenosis was in the mid artery segment. The indication for angioplasty was accelerated deterioration in renal function in 3 (18%), poorly controlled hypertension in 12 (71%), or elective prior to coronary or carotid revascularisation procedures in 4 (24%). In 3 patients (creatinine 377, 440 and $501 \mu\text{mol/L}$ respectively), PTA was performed as a salvage attempt. 13 patients (76%) were not suitable for surgery due to other underlying diseases. Angioplasty and stenting was successful in all patients. Mean stenosis was reduced from $83 \pm 10\%$ to $1 \pm 4\%$. There were no major in-hospital complications (defined as death, myocardial infarction, bleeding requiring transfusion, need for urgent surgical repair, or CVA). The median hospital stay was 3 days post-PTA (mean 4.2 ± 3.6). At a mean follow up of 39 ± 22 weeks, there was one death in a 66-year-old patient who underwent PTA as a salvage attempt, who developed sepsis during maintenance dialysis. The other 16 patients were alive and free from any events or need for surgery. Their mean creatinine reduced from 195.6 ± 133.4 (prior to PTA) to 157.4 ± 68.0 during follow-up. Hypertension control improved in 8/12 patients. The number of antihypertensive medications required was reduced from 2.3 ± 1.3 prior to PTA to 1.2 ± 1.0 at follow-up. Four patients did not require antihypertensive treatment altogether following angioplasty. Angiographic follow-up up-to-date showed restenosis in only 1/10 vessels (10%). Conclusions: Percutaneous renal angioplasty and stenting for renal artery stenosis is a safe and effective procedure even in those who are not suitable for surgery. The majority of these patients experience symptom relief, improvement in renal function and reduction in medication requirement. Despite the severe stenosis in this cohort and a high percentage with atherosclerotic ostial disease, the restenosis rate was only 10%.

ANGIOPLASTY AND STENTING TO TREAT STENOSIS IN THE LARGE SUPRA-AORTIC VESSELS SUPPLYING ISCHEMIC AREAS OF THE BRAIN

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Large artery thrombosis and embolization accounts for around 30% of all strokes. In those patients who have good functional recovery, surgical endarterectomy has been shown to reduce the risk of recurrent strokes, which is often debilitating and associated with a high mortality. Many patients, however, are not suitable surgical candidates due to underlying medical disease or unsuitable anatomy. From Jan to Nov 1996, 11 patients (8 male, 3 female) underwent 12 revascularization procedures to 12 extracranial cerebral vessels. The indication was TIA or stroke ($n=7$), and vertebral basilar ischemia or subclavian steal syndrome ($n=5$). Mean age was 69 ± 7 years. The patients were unsuitable for surgery due to anatomical reasons ($n=9$), underlying medical conditions ($n=6$), or significant disease in the contralateral vessel ($n=3$). The target lesions included the internal carotid artery ($n=6$), vertebral artery ($n=1$), and subclavian artery ($n=4$). A single stent was deployed in each lesion. Mean stenosis was reduced from $93 \pm 6\%$ to $0 \pm 0\%$. Clinical success (defined as procedural success without any in-hospital complications) was achieved in 11/12 procedures (92%). There were no mortality, myocardial infarction or need for surgery. One patient with TIA suffered left hemiparesis due to distal embolization. Following rehabilitation, this patient was independent in daily living with only mild left upper limb weakness. All patients were discharged home with a median hospital stay of 2 days post-procedure. At a mean follow-up of 4.2 ± 3.6 months, there was no stroke or TIA. Five patients reported resolution of arm claudication or dizziness. Three reported improvements in motor function. Two reported improvements in higher center function. Conclusions: Percutaneous angioplasty and stenting to the extracranial cerebral vessels was associated with a high procedural success rate and good long-term outcome. Preliminary results suggest that this procedure is effective in reducing recurrent TIA or stroke. Besides reduction in stroke risk, a pleasant surprise was improvements in motor and higher center function with reversal of perfusion deficit in some patients.