DEMONSTRATION OF CORONARY ANGIOPLASTY WITH PET BALLOON MATERIAL:

Angioplasty (PTCA) of stenoses at 25° bend (B) is known to be associated with increased procedural risk. However, detailed assessment of the clinical, anatomic, and procedural variables associated with outcome is lacking, and methods to improve outcome are not known. Therefore, every third elective PTCA from 3/86/6/89 was analyzed for the presence of B stenoses and outcome. B stenoses were characterized for 25 variables including stenosis angle, ACC/AHA score, balloon type, balloon artery ratio, inflation pressure and operator experience. The use of PET balloon material improves the success of PTCA of coronary stenoses. Success rates for B stenoses were 9/44 = 21% (95% CI = 0.26-0.64) versus 9/44 = 21% (95% CI = 0.26-0.64) with non-B stenoses respectively (p = 0.001 for both). Failure was due to dissection in 9/44. Procedural success was independently predicted by polyethylene terephthalate (PET) balloon material (p = 0.003), and no associated thrombus (p = 0.04), but no other variable was predictive. Infection or bypass surgery was independently predicted by age (p = 0.03), operator inexperience (p = 0.05), thrombus (p = 0.05), and stenosis length (p = 0.05). In the presence of age > 45 yrs, thrombus, or stenosis length > 20 mm, the risk of abrupt closure was 9/44 = 21% (95% CI = 14-26%) whereas in their absence risk was 4/44 = 7% (95% CI = 0.1-14%).

Thus: 1) experienced operators can better avoid complications associated with these high risk stenoses; 2) stenoses in B > 65 yrs, with thrombus or length > 20 mm should be avoided, but those without these characteristics may be approached relatively safely; 3) the use of PET balloon material improves the success of PTCA on angled stenoses, possibly due to lab-proven better angle conformability.