## SINGLE AND DOUBLE BALLOON MITRAL VALVULOPLASTY VIA RETROGRADE LEFT ATRIAL CATHETERIZATION: A NEW NON-TRANSSEPTAL TECHNIQUE.

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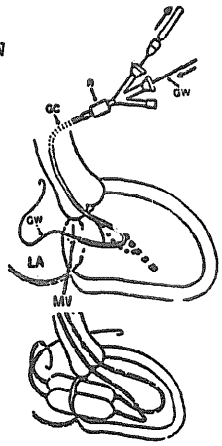
Mitral valvuloplasty was performed by using a new technique for retrograde approach to the LA. A newly designed externally steerable guiding catheter (GC) is used for the introduction of one or two guide wires (GW) to the LA. One (25 or 30 mm) or two (18+20 or 20+20 mm) balloon catheters are advanced through the right femoral artery in signle balloon technique, or through both the femoral arteries in double balloon technique, along the GW into the mitral valve (MV) (Figure). The technique was used successfully in 12 adult patients with reumatic MV stenosis. After the procedure there was a significant reduction of the mean MV pressure gradient (6.3±0.8 from 19.2±2.2 mmHg) and an increase of the MV area in all cases (1.9±0.7 from 0.8±0.5 $cm^2$). There were no complications during or after the procedure.




This retrograde technique for mitral valvuloplasy based in a new steerable cardiac catheter, may be safer, quicker, and has lower overall cost than the transseptal methods.

## SEQUENTIAL CHANGES IN CORONARY VASOREACTIVITY BEFORE AND AFTER CORONARY ANGIOPLASTY.

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In addition to disease related changes in coronary endothelial and smooth muscle function, coronary angioplasty (PTCA) might alter the reactivity of coronary arteries. To study the effect of PTCA on coronary vascular reactivity, quantitative coronary arteriography was performed in 10 patients in the basal state (B), during cold pressor test (CPT) and after intracoronary administration of 300µg nitroglycerin (NTG), immediately before and after PTCA, at 4 hours and at 7 days after PTCA. All anti-anginal medications were stopped 48 hours before all phases of the study except for aspirin. The minimal luminal diameter (mm, mean±SEM) was:

| | before-PTCA | after-PTCA | 4 hours | 7 days |
|---|---|---|---|---|
| B | 0.95±0.12 | 1.86±0.08 | 1.41±0.09‡ | 1.81±0.09 |
| CPT | 0.66±0.12* | 1.72±0.10 | 1.46±0.08 | 1.54±0.11* |
| NTG | 1.23±0.08† | 1.93±0.08† | 1.77±0.07† | 1.98±0.10† |

‡ $p<0.005$ vs B(after and 7 days), * $p<0.004$ vs B, † $p<0.001$ vs B.

Thus, immediately following successful PTCA, no vasoconstriction is elecited by CPT. At 4 hours a significant reduction of luminal diameter and persistent unresponsivness to CPT is observed. Conversley, at 7 days the luminal diameter is similar to that immediately following PTCA and the reactivitiy to CPT is comparable to that before PTCA. We conclude that PTCA exerts a reversable focal stunning of the vascular smooth muscle which tend to recover within 1 week. This abnormal behaviour of the smooth muscle might explain the transient coronary constriction early following PTCA.

## DENSITOMETRICALLY OBSERVED DIFFERENCES IN ELASTIC RECOIL OF THE THREE MAIN CORONARY ARTERIES AFTER PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY.

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Apart from plastic changes, the immediate result of a balloon angioplasty procedure is also dependent on elastic properties of the coronary segment. It has been stated that cross-sectional area (CSA) measurements derived from contour detection do not reflect accurately the morphologic changes induced by angioplasty. Therefore we used a densitometric analysis technique which allows the computation of coronary cross-sectional areas from the brightness levels within the arterial segment. 152 segments of 140 patients were analysed. Minimal luminal cross sectional areas (MLCA) were compared with the CSA of the largest balloon at the highest inflation pressure. A single identical view of the balloon and the arterial segment were analysed using the same X-ray setting (kV, mA). Nitrates were given intracoronary pre-and post-PTCA to avoid the influence of spasm. Recoil was defined as the difference between balloon CSA and MLCA post-balloon angioplasty.

Mean balloon-artery ratio was 0.94 ± 0.17, so on average a good match between balloon size and reference size was achieved.

| | LAD n=78 | LCX n=34 | RCA n=40 | ANOVA |
|---|---|---|---|---|
| a. Balloon CSA | 5.2±1.7 | 5.5±1.5 | 4.9±1.4 | NS |
| b. MLCA post-angioplasty | 2.5±1.3 | 3.1±1.2 | 3.0±1.6 | NS |
| c. Reference CSA | 5.8±2.7 | 6.0±1.7 | 6.6±2.4 | NS |
| d. Recoil (a-b) | 2.7±1.3 | 2.3±1.2 | 1.9±1.5 | p<0.03 |

Mean ± SD (mm2) ANOVA=analysis of variance, LAD=left anterior descending artery, LCX=circumflex artery, RCA=right coronary artery.

Immediately after the angioplasty procedure nearly 50% of the theoretical maximal gain achievable by balloon angioplasty is lost due to recoil. This phenomenon is most pronouced in the left anterior descending artery. When corrected for reference area this difference was still statistically significant. Spasm responsive to intracoronary nitrates could be ruled out.

## EARLY AND INTERMEDIATE RESULTS OF BALLOON ANGIOPLASTY FOR COARCTATION OF THE AORTA IN ADULTS

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Between September 1986 and July 1989, 15 consecutive adult patients with coarctation of the aorta underwent balloon dilatation. They were eleven males and 4 females aged 15-30 (mean 19) years. Measurement of the peak systolic gradient (PSG) and angiographic studies of the aorta were performed, before and immediately after angioplasty in all 15 patients; 12 of them underwent restudy 4-24 (mean 9.8) months later. Student's t-test was used for comparison of data. Results: Hypertension persisted in 14 patients but was controlled by medication. PSG before dilatation was 40-100 (mean 66.4 ± 18.4) mmHg, immediately after dilatation it dropped to 0-35 (mean 7.6 ± 10) mmHg ($P< 0.001$) and at restudy was 0-35 (mean 7.1 ± 11.2) mmHg. One patient restenosed 6 months after dilatation and was successfully redilated and remained so a year later at restudy. Angiographic findings: immediately after dilatation there was no aneurysm. Two out of 12 patients showed small saccular aneurysms at the posterior wall of the aorta when restudied after 6 months. Conclusion: Intermediate results of coarctation balloon angioplasty in adults is encouraging. A larger series over a longer period of time is needed to assess the incidence of aneurysm formation.