DIFFERENT SUSCEPTIBILITY TO THE DEVELOPMENT OF NITRATE TOLERANCE IN ARTERIAL AND VENOUS VESSELS IN MAN.

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To assess the relative changes induced in arterial and venous vessels in man by continuous nitroglycerin (NTG) infusion and the interaction between N-acetylcisteine (NAC) and NTG, we studied 12 pts with coronary artery disease. Pts underwent a continuous 24h NTG infusion at a dose which was previously titrated to reduce mean arterial pressure by 10% (200±100 µg/min) followed by a 5g NAC infusion over 15min. Forearm blood flow (FBF, ml/100ml/min) and venous volume (VV, ml/100ml) were measured with a mercury-in-silastic strain gauge technique. Blood pressure (BP) was measured by cuff and vascular resistance (FVR, mmHg/ml/100ml/min)was calculated by dividing mean BP by FBF. Results under control conditions (C), at peak NTG titration (T), at 24h infusion and after NAC are as follows : where *=p<.05 vs C and Ω=p<.05 vs 24h

	C	T	24h	NAC
mean BP	87.2±7.2	76.9±4.8*	80.2±8.2*	82.1±8.2
FBF	4.4±0.6	4.3±0.9	4.9±1.7	5.1±1.7
FVR	20.2±2.9	17.8±2.9*	16.7±4.5*	16.5±4.0
VV	3.0±1.1	3.8±1.3*	3.4±1.2	4.0±1.5Ω

Thus, after 24h NTG infusion, partial tolerance developed in the venous system while vasodepressor effects were not attenuated in the arterial vessels. NAC restored NTG effects in the venous bed but did not potentiate NTG effects in the arterial "non-tolerant" circulation.

CHARACTERISTICS OF ACCESSORY PATHWAYS EXHIBITING DECREMENTAL CONDUCTION.

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The electrophysiologic (EP) characteristics of accessory pathways (AP) with decremental conduction (DC) properties were examined in 40 patients (pts), aged 33 ± 12 yrs. Four percent of pts with an AP at EP study had DC over the AP. Decremental conduction over the AP was identified in the retrograde direction only in 28 pts, antegrade only in 7 pts and in both antegrade and retrograde directions in 5 pts. In the 33 pts with retrograde DC, antegrade conduction over the AP was absent in 2 pts and intermittent in 2 pts. In pts who had retrograde DC over the AP, and who had consistent antegrade conduction over the AP (n=29), the antegrade and retrograde Wenckebach cycle lengths were 264 ± 60ms and 270 ± 30ms, respectively (p NS) and the antegrade and retrograde effective refractory periods of the AP were 255 ± 23ms and 271 ± 28ms, respectively (p<0.001). Where DC was demonstrated only in the antegrade direction, retrograde conduction over the AP was absent. The AP was left sided in 27 pts (18 lateral, 9 posteroseptal). Retrograde DC was present in 25 pts, but only 4 pts had antegrade DC. The AP was on the right in 5 of 7 pts with DC in the antegrade direction only.

These observations suggest that 1) DC may occur in both antegrade and retrograde directions over the same AP 2) conduction over an AP in an antegrade and retrograde direction may be functionally distinct and 3) left sided pathways rarely exhibit antegrade DC.

Wednesday, March 21, 1990
10:30AM–12:00NOON, Room 23
Preexcitation: Anomalous Pathways

THE USE OF ADENOSINE IN SINUS RHYTHM AS A DIAGNOSTIC TEST FOR LATENT PREEXCITATION.

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In a proportion of patients with left free-wall accessory connections, preexcitation is apparent only during atrial arrhythmias or atrial pacing (latent preexcitation). These patients may be at risk of a rapid ventricular response to atrial fibrillation despite the absence of preexcitation in sinus rhythm. The ability of intravenous adenosine to unmask latent preexcitation was evaluated in 22 patients with a history of documented supraventricular tachycardia and a normal ECG during sinus rhythm. Adenosine was given in incremental doses up to 0.25mg/kg. Preexcitation was unmasked in response to adenosine in 4 patients: all 4 were shown to have latent preexcitation at electrophysiologic study. In 12 patients atrioventricular (AV) nodal conduction delay or block was induced without preexcitation following adenosine (first degree AV block in 8, 2nd degree block in 4) and in a single patient non-preexcited atrial fibrillation was induced: at subsequent electrophysiologic study none of these patients was found to have latent preexcitation. Five patients had little or no PR prolongation in response to adenosine: of these, 2 were shown to have latent preexcitation.

It is concluded that intravenous adenosine during sinus rhythm is capable of producing AV nodal conduction delay or block in 73% of patients with a history of paroxysmal supraventricular tachycardia: in these patients adenosine provides a diagnostic test that is both 100% sensitive and 100% specific for latent preexcitation. In those patients in whom adenosine does not produce AV conduction delay or block further investigation is required to establish or refute the diagnosis of latent preexcitation.

BRACKETING, FRAGMENTATION AND MORPHOLOGY OF ATRIAL ELECTROGRAMS DURING CIRCUS MOVEMENT TACHYCARDIA USING AN ACCESSORY PATHWAY.

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The presence and significance of bracketing (B) fragmentation and morphology (M) of atrial unipolar electrograms was assessed in 38 pts with a septal (n=5) or left-sided (n=33) accessory pathway. Unfiltered atrial unipolar electrograms and their bipolar electrogram were recorded from the coronary sinus during tachycardia. Localization of accessory pathway was confirmed in 32/33 pts during surgery. M and fragmentation of atrial unipolar electrograms was studied at the site of shortest and longest ventriculoatrial (VA) interval and in relation to presence or not of B. Results are:

M	B	Shortest VA	Longest VA	P value
QS	13	12	5	
rS	4	4	9	<.0001
RS	2	3	24	

Fragmentation was present in 12 Pts (31%). In 11 at the site of B or shortest VA, in 1 at site without B and longest VA. Fragmentation was associated with double potentials in bipolar electrograms. Conclusions: 1. RS M is recorded rarely at site of insertion of accessory pathway. 2. rS or QS M confirms site of accessory pathway when associated with B or the shortest VA.
3. Fragmentation of atrial unipolar electrogram simulates accessory pathway potentials.