

## Clinical and Hemodynamic Outcome of Inferobasal Wall Injury Complicating Alcohol Septal Ablation in Hypertrophic Cardiomyopathy

Andre Keren, Marina Potekhin, Israel Gotsman, Donna Zwas, Morris Mosseri, Ronen Beeri, David Leibowitz, Galina Levin, Haim Danenberg, Arthur Pollak, Dan Admon, Chaim Lotan  
Heart Institute, Hadassah University Hospital, Jerusalem, Israel

**Background:** In selected patients with hypertrophic obstructive cardiomyopathy (*HOCM*) alcohol septal ablation (*ASA*) is used as an alternative to surgical myectomy. Prior to *ASA* assessment of the region perfused by the targeted septal branch (*SB*) is performed in order to avoid alcohol delivery or leakage to remote areas. We report the clinical signs and outcome of inferior wall injury (*IWI*), a rare and not fully understood complication of *ASA*.

**Patients:** *ASA* was performed in 26 pts, 17 (65%) males, aged 33-78 years (60±12). Follow up was 32±30 months. *IWI* was diagnosed in 3 of the 26 pts (11%) and in an additional case followed in our institution but not part of the consecutive series. *ASA* was performed as a palliative procedure in 1 of the 4 pts with *IWI*. The pt had multiple oncological diseases, severe *HOCM* and severe, only partially *SAM* related, mitral regurgitation.

**Results:** Following the injection of alcohol, pts with *IWI* typically developed long lasting chest pain, ST elevation in inferior leads, decreased flow in the *PDA* and thinning of the basal infero-posterior wall during follow up. Comparison of pts without and those with *IWI* revealed no differences in age, gender distribution, symptoms, *NYHA* functional class (3.3± 0.5 vs 3.4±0.3, respectively), echocardiographic maximal wall thickness (19.9±3.2 vs 17.8±2.1 mm), maximal *LV* outflow gradient (72±33 vs 85±17 mmHg), degree of mitral regurgitation (3.1±1.5 vs 4.5±0.6, p=0.08), number of *SB* ablated and the amount of alcohol injected.

	Alcohol (ml)	CPK	ΔNYHA	ΔGrad	Full Grad Abolition	ΔMR
<b>N0 IWI (n=23)</b>	2.3±1.0	1016±436	-1.2±0.5	-52±29	6 (26%)	-1.8±1.4
<b>IWI (n=4)</b>	2.6±0.9	2609±1092	-2.0±0.7	-73±29	3 (75%)	-2.8±1.9
<b>P value</b>	0.4	<b>0.03</b>	<b>0.04</b>	0.13	<b>0.05</b>	0.30

Δ = change after *ASA*, Grad = outflow gradient, MR=mitral regurgitation

In 3 of the 4 cases with *IWI*, angiographic and myocardial contrast echo methods were used to predict the area of ablation. Persistent complete AV block occurred in 2 cases (50%) who had pacemaker or *ICD* implantation as compared with 16% of pts with no *IWI* (P=0.14). During the follow up there was an early and remarkable improvement in symptoms in all 4 pts with *IWI*. Three of the 4 remained asymptomatic and without baseline or provokable gradients 6-120 months after *ASA*. One patient with organic MR became symptomatic again after development of chronic atrial fibrillation. Only mild basal inferior hypokinesis was found on follow up echocardiograms in 3 of 4 pts. One pt without *IWI* died of pneumonia and sepsis 2.5 years after *ASA*.

**Conclusions:** *IWI* may occur during *ASA* despite the use of angiographic and echocardiographic contrast methods expected to predict this complication. *IWI* was associated with higher peak CK values, tendency for a higher rate of pacemaker implantation, and remarkably favorable hemodynamic and symptomatic outcome. Despite the positive clinical outcome in our small number of pts, all efforts should be made during *ASA* to minimize the extent of myocardial injury and avoid damage of remote non targeted myocardium, including the base of the inferior wall. Further research into optimal methods of *TASH* while minimizing myocardial damage should be pursued.