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**Splenic Switch-off as a Predictor for Coronary Adenosine Response During Myocardial Perfusion Imaging: Evaluation Against 13N-ammonia PET/MR**

**Authors:**
DP Patriki\(^1\), EVF Von Felten\(^1\), AG Giannopoulos\(^1\), CK Kamani\(^1\), MS Schwyzer\(^1\), MM Messerli\(^1\), DB Benz\(^1\), CG Gebhard\(^1\), CG Graeni\(^1\), AP Pazhenkottil\(^1\), PK Kaufmann\(^1\), TF Fuchs\(^1\), RB Buechel\(^1\), \(^1\)University Hospital Zurich, Department of Nuclear Medicine - Zurich - Switzerland,

**Topic(s):**
Positron Emission Tomography (PET)

**Citation:**
This work was supported by a grant from the Swiss National Science Foundation (SNSF, Project No. 175640).

**Funding Acknowledgements:**
This work was supported by a grant from the Swiss National Science Foundation (SNSF, Project No. 175640).

**Background:**
Inadequate coronary adenosine response is a potential cause for false negative myocardial perfusion in cardiac stress magnetic resonance imaging (CMR). Recently, the splenic switch-off (SSO) sign has been identified as a promising tool to assure efficacy of adenosine.

**Purpose:**
We assessed the value of SSO to predict adenosine response, defined as an increase in myocardial blood flow (MBF) during quantitative myocardial perfusion 13N-ammonia positron emission tomography (PET).

**Methods:**
Patients who underwent simultaneous CMR and 13N-ammonia PET myocardial perfusion imaging on a hybrid PET/MR device (Signa PET/MR, GE Healthcare) were included. Co-injection of Gadolinium-based contrast agent and 13N-ammonia was performed during rest and 3 minutes into standard adenosine stress. Patients with a myocardial flow reserve (MFR) of >1.5 or ischemia as assessed by PET were considered as true coronary adenosine responders. The presence or absence of SSO was visually assessed and relative CMR signal intensity increase between adenosine-induced stress and rest was calculated for spleen and myocardium. Consequently, a spleen-myocardium ratio (SMR) was derived.

**Results:**
All 33 included patients were true coronary adenosine responders (i.e. with an MFR >1.5 or presence of ischemia), whereas SSO was absent in 25 (76%) patients. MFR did not differ between patients with presence or absence of SSO (2.86 vs 3.28, p=0.32). SMR was significantly lower in patients with positive SSO (0.42 vs. 0.93; p<0.001). No correlation was found between MFR and SMR (R = -0.178; p=0.32).

**Conclusion:**
The absence of SSO does not exclude adenosine-induced MBF response.