Significance of lactic acid accumulation after exposure to iodinated contrast media in diabetic patients receiving metformin

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**Background:** Metformin is a biguanide oral hypoglycemic agent with cardio protective effect. Lactic acidosis is a rare fatal adverse effect of metformin (0.01–0.15 per 1000 patients). Administration of intravenous iodinated contrast media during radiologic procedures may lead to acute decline in renal function (0.1–13%) and subsequent lactic acidosis in patients receiving metformin therapy. No clinical trials tested the extent of lactic acidosis in diabetic patients exposed to contrast media.

**Objective:** This study aimed to investigate the correlation of lactic acid accumulation with clinical outcome in metformin treated diabetic patients exposed to contrast media.

**Methods:** A single-center, prospective single arm clinical observational trial involved diabetic patients on metformin therapy undergoing cardiac catheterization. The study endpoints are drawn from laboratory and clinical outcomes. Patients with acute renal dysfunction or deterioration were excluded from the study. The patients were followed at baseline, and 72 h for clinical and laboratory assessment. The primary end point was clinically significant lactic acidosis.

**Results:** 156 diabetic patients on metformin were enrolled in this study with mean age of 61.8 ± 10.4, 84% were males. Lactic acid, bicarbonate, and pH levels, at baseline and 72 h were; (1.7 ± 1.2 & 2.1 ± 1.8, p value = 0.016), (24.4 ± 2.0 & 24.6 ± 3.2, p = 0.7), and (7.37 ± 0.05 & 7.36 ± 0.06, p = 0.44), respectively. All patients were clinically stable at 3 days follow up, no reported death or significant adverse events during the study period.

**Conclusion:** In contrast to the current recommendations, continuing use of metformin during contrast exposure in high risk population was found to be safe and not associated with clinically significant lactic acidosis.

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Use of combination of mitral clip and CGMP-specific phosphodiesterase type 5 inhibitor as bridge for cardiac transplantation

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**Introduction:** Severe mitral regurgitation (MR) and severe pulmonary hypertension (PH) are common consequence of advanced end stage heart failure (HF). Cardiac transplantation is the only available treatment modality with reasonable long term outcome for end stage HF. Presence of severe resistant PH could preclude transplantation. We reported two cases with end stage heart failure and NYHA class III, who have been initially turned down from cardiac transplantation because of severe PH, and we managed to bridge them with mitral clip and Sildenafil to be transplant eligible. Description of the cases.

**Case 1:** First patient is 50 years old gentleman, who is known to have ischemic cardiomyopathy, ejection fraction (EF) of 15%, and severe MR, with significant functional limitation (NYHA class III) despite of maximum medical therapy. His pulmonary arterial systolic pressure (PASP) was 80 mmHg, TPG = 30 mmHg, pulmonary capillary wedge pressure (PCWP) = 33. After full evaluation he underwent successful deployment of mitral clip and started on seldanafil 25 mg three times daily, hoping this will lower the PASP to an acceptable level, to allowlisting for cardiac transplantation. Echocardiographic assessment after one month of treatment showed that estimated PASP of 40 mmHg.

**Case 2:** Second patient is 75 y old, who is known to have ischemic cardiomyopathy, status post three vessels angioplasty, with EF of 25%, and severe MR. He was very symptomatic despite maximum medical therapy. He was deemed not suitable for cardiac transplantation, because of severe pulmonary hypertension; PASP = 85 mmHg, mean PA = 59 mmHg, PCWP = 38 mmHg. He underwent successful deployment of mitral clip and started on sildenafl 25 mg three times daily. At one month follow up PASP went down to 45 mmHg.

**Conclusion:** We report for first time a successful use of mitral clip and sildenafil treatment as a bridge to transplant eligibility, for those who have severe MR and PHTN secondary to advances heart failure. These patients may not be otherwise suitable transplant candidate.

This case report brings a new hope for selected high risk HF patients, with severe MR and severe PHTN.

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Management of multiple ventricular septal defects: Evolution of surgical technique

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**Background:** Residual ventricular septal defects (VSDs), ventricular and septal dysfunction and heart block are frequent complications in surgical management of multiple VSDs (Swiss cheese heart). The technique with the lowest risk of morbidity and mortality has still to be identified.

**Methods:** Between January 200 and September 2012, 45 patients with a median age of 4.1 years (2 months to 15 years) underwent surgical closure of multiple VSDs. In 22 cases there were associated lesions. Two-stage repair, i.e. pulmonary artery banding (PAB) followed by VSDs closure using different techniques, was adopted in 29 cases