

**Management of low cardiac output following fetal aortic valve dilatation and neonatal Ross-Konno procedure. Report of two cases.**

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The postoperative treatment of newborn patients with critical aortic stenosis, endocardfibroelastosis and biventricular circulation has to deal with problems caused by a restrictive and stiff left ventricle. This leads to an elevated end-diastolic pressure, an increase in the left atrial and pulmonary artery pressure causing a low cardiac output syndrom (LCOS). Patients, who underwent a fetal aortic balloon dilatation have particular needs because they can develop significant LV hypertrophy with a good systolic function generating a high gradient over the aortic valve but with a impaired diastolic function. After a neonatal Ross-Konno procedure to relief LV outflow obstruction, some of these patients have to go on ECMO due to LCOS. To wean them off ECMO usually positive inotropic catecholamines like epinephrine and dobutamin are applied.

We present two particular cases from our Center with critical aortic stenosis after fetal aortic balloon dilatation at 30 weeks of gestation. In both cases the left ventricle regained its systolic function after the fetal intervention and was again able to generate a high gradient over the aortic valve. Following a neonatal Ross-Konno procedure both patients had to go on ECMO due to LCOS. The weaning from ECMO was successful only by using lusiotropic drugs like milrinon and levosimendan instead of catecholamines. In the case of the first patient three weaning attempts failed using catecholamines to treat LCOS. After three cycles of levosimendan and 19 days on ECMO the fourth attempt was successful using only low doses of dobutamin and milrinon but no epinephrine at all. In the case of the second patient levosimendan was administered on ECMO and - after seven days - weaning was successful using again only lusiotropic drugs like milrinon and nitroprussidnatrium but no epinephrine.

Fetal aortic balloon valvuloplasty may lead prenatally to significant LV hypertrophy with good systolic but impaired diastolic function, which postnatally needs tailored treatment with lusiotropic medication avoiding inotropic catecholamines.