The Fontan operation has been used to palliate patients with a functional single ventricle. In many such patients the operative risk for a Fontan procedure is high and the bidirectional cavopulmonary shunt (BCPS) is a useful interim palliation. Outcome of the Fontan operation was analyzed to assess the effect of a prior BCPS and to compare the extracardiac conduit with intracardiac lateral tunnel, utilized as connection between the inferior vena cava (IVC) and the pulmonary arteries.

From January 1992 to August 2000, 55 consecutive patients were submitted to Fontan procedure after a prior BCPS. In 24 patients (Group I) the connection between IVC and the pulmonary arteries was accomplished by means of an intracardiac lateral tunnel; in 31 patients (Group II) an extracardiac conduit (PTFE tubular prosthesis) was utilized. Mean interval between BCPS and Fontan operation was 28 month. In 48 patients pulmonary arteries were judged normal sized; in 7 patients a significant kinking/stenosis was present. There was no statistically significant difference between the two groups in terms of age at operation, diagnosis and preoperative risk factors. In all patients the Fontan procedure was performed with the aid of cardiopulmonary bypass; in 54 patients through a median sternotomy and in one through a right lateral thoracotomy.

3 patients died (5%), in the hospital and one patient died after four month for neurological complications. There was no significant difference between the two groups in terms of hospital mortality, pleural effusion, and protein loosing enteropathy. Incidence of rhythm disturbances and ICU staying were lower in Group II.

Fontan procedure after BCPS can be performed with a low mortality and morbidity. The use of an extracardiac conduit is a safe and reproducible technique, which may decrease the incidence of postoperative arrhythmia's.