26419 - IMPORTANCE OF DIFFICULT SEPARATION FROM CARDIOPULMONARY BYPASS

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INTRODUCTION: Difficult separation from bypass (DSB) is an important issue in cardiac surgery and has been associated with increased postoperative complications. However the impact of DSB on overall mortality is unknown. Furthermore there are no consensus on the definition of DSB. Therefore the impact of DSB on mortality was studied through a retrospective database analysis on two cohorts of patients from two major cardiac surgical centers in the province of Quebec over a 9-year period. In addition a consensus of the definition of DSB was obtained and validated prospectively.

METHODS: For quality assurance and research, the Montreal Heart Institute (MHI) and the Quebec Heart & Lung Institute (QHLI) maintain a database of all their patients operated on. The first studied cohort consists of 4993 consecutive patients operated between 1995 to 1999 at the MHI. The MHI definition for DSB was the use of vasoactive agents (noradrenaline $>15 \mu\text{g}/\text{min}$, milrinone, dobutamine, dopamine $>5 \mu\text{g}/\text{min}$), intra-aortic balloon pump (IABP) or return on CPB for hemodynamic reasons. The primary end-point was mortality. The importance of DSB was also studied on the second cohort, which consisted of 5000 patients operated at the QHLI from 2001 to 2004.

RESULTS: In the first cohort, 179 deaths occurred (3.6%). DSB was significantly associated with mortality (OR: 3.11; CI: 1.8-5.2; $p<0.0001$). The other factors were age (OR: 1.74; CI: 1.4-2.1; $p<0.0001$), weight (OR: 1.18; CI: 1.0-1.3; $p=0.0117$), preoperative creatinine (OR: 1.35; CI: 1.1-1.6; $p=0.0019$), CPB duration (OR: 1.2; CI: 1.1-1.2; $p<0.0001$), heart failure (OR: 2.0; CI: 1.1-3.1; $p=0.0005$), reoperation (OR: 1.68; CI: 1.1-2.5; $p=0.0096$), hypertension (OR: 1.47; CI: 1.0-2.1; $p=0.0346$), atherosclerosis (OR: 1.57; CI: 1.0-2.3; $p=0.0261$), pulmonary disease (OR: 1.60; CI: 1.0-2.4; $p=0.0302$), nitrates use (OR: 1.05; CI: 0.6-1.6; $p=0.0358$), preoperative IABP (OR: 2.23; CI: 1.3-3.8; $p=0.0045$) and complex surgery (OR: 1.67; CI: 1.1-2.6; $p=0.0211$). In the second cohort, the overall mortality rate (4.3%) was similar. DSB was also significantly associated with mortality in the QHLI (OR: 2.96; CI: 1.8-4.9; $p<0.0001$).

DISCUSSION: DSB correlates with mortality in two different centers over two different periods. Further studies are required to determine if prevention of DSB could be associated with improved outcome.