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Title: Cardio-respiratory exercise testing in the pre-surgical evaluation of lung cancer patients

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Body: Introduction. Current guidelines recommend cardiopulmonary exercise testing (CPET) in very select patients (postoperative FEV1 or DLCO<40%predicted). Whether systematic CPET can add to preoperative risk stratification has never been fully assessed. Aim. To assess the association of pre-operative ergometric parameters with postoperative outcome in pts with operable (stage I-IIa) non small cell lung cancer (NSCLC). Methods. 50 pts with NSCLC were finally enrolled. During preoperative stratification of surgical risk, actual spirometric parameters diffusing capacity (DLCO) and post-operative FEV1%pred were assessed. A maximal CPET by Bruce-protocol, was performed in all patients, using an ergometric treadmill. Pts were stratified as appropriate for major or minor lung resection in accordance to current guidelines. The rate of cardio-pulmonary complications and mortality during the immediate 30 postoperative days, were associated with preoperative spirometric and ergometric parameters, in different groups of pts. Results. Maximal oxygen consumption (VO₂max<10ml/kg/min and VO₂%pred<40 were associated with significantly higher complications rate (80% vs 2,5% and 77,7% vs 4,8%, p<0,001) and mortality (20% vs 0%, p<0,001). The complication rate was: 15,7% in pts with preoperative FEV1 and DLCO<80%, 19,35% in pts with preoperative FEV1 and DLCO<80% but ppoFEV1>40% and 33,3% in pts with preoperative FEV1 and DLCO<80% and ppoFEV1<40%. Conclusions. The results of the current study support a more liberal use of CPET before lung resection compared with current guidelines, since this test improves the stratification of the surgical risk guiding the perioperative care.