Title: Effect of pre-operative short-term rehabilitation on peak VO2 in patients with NSCLC

Dr. Pierre-Olivier 24829 Bridevaux pierre-olivier.bridevaux@hcuge.ch MD 1, Prof. Jean-Marie 24830 Tschopp jean-marie.tschopp@hopitalvs.ch MD 2, Ms. Chetna 24831 Bhatia chetna.bhatia@hcuge.ch 5, Dr. Isabelle 24832 Frésard isabelle.fresard@hcuge.ch MD 1, Dr. Fréderic 24833 Triponez frederic.triponez@hcuge.ch MD 4, Dr. Jean-Marie 24847 Schnyder jean-marie.schnyder@hopitalvs.ch MD 2, Prof. John 24837 Robert john.robert@hcuge.ch MD 4, Prof. Thierry 24901 Rochat thierry.rochat@hcuge.ch MD 1 and Prof. Marc 24840 Licker marc-joseph.licker@hcuge.ch MD 3. 1 Pulmonary Care Division, University Hospitals, Geneva, Switzerland; 2 Pulmonary Care Division, Reseau Santé Valais, Sion/Montana, Switzerland; 3 Anesthesiology Division, University Hospitals, Geneva, Switzerland; 4 Thoracic Surgery Division, University Hospitals, Geneva, Switzerland and 5 Physiotherapy Division, University Hospitals, Geneva, Switzerland.

Body: Preoperative fitness is best assessed with cardio-pulmonary exercise testing (CPET) in patients with non-small cell lung cancer (NSCLC). Peak Oxygen consumption (VO2 peak) is predictive of short-term complications after thoracic surgery. Feasibility and effect of short-term (2 to 3 weeks) rehabilitation on fitness and short-term outcomes are unknown. We planned a pragmatic, randomized controlled trial (RCT) comparing short-term rehabilitation (R) with usual care (UC) in patients with operable NSCLC. Method: This ongoing study enrolls patients after baseline CPET from 2 centres in Switzerland. Intervention: preoperative three-times a week, intensive, respiratory physiotherapist supervised interval training. Controls: usual care. Outcomes: post-operative complication rate, short-term change in VO2 (baseline and immediately before surgery), long-term fitness and quality of life. Results: Up to December 2011, 65 patients were randomized, R n=31, UC n=34 (mean age 63.4 [10.5], FEV1 86.7% [23.5], DLCO 70.5% [19.0], VO2 peak 19.5 ml/min/kg [5.7] watt peak 86 W[38], 6MWT 370 m [101]). As reassessed immediately before surgery VO2 peak (+2.3 [0.7] ml/min/kg, p=0.04), watt (+15.5 [4.6] W, p=0.04), 6MWT (+87 [15.5] m, p<0.01) improved in R but not in UC patients.

Conclusion: This interim analysis shows that short-term intensive rehabilitation is feasible and improves fitness before surgery in patients with resectable NSCLC.