Documents

Levy, A.[a] , Adebahr, S.[b c] , Hurkmans, C.[d] , Ahmed, M.[e] , Ahmad, S.[f] , Guckenberger, M.[g] , Geets, X.[h] , Lievens, Y.[i] , Lambrecht, M.[j k] , Pourel, N.[l] , Lewitzki, V.[m] , Konopa, K.[n] , Franks, K.[o] , Dziadziuszko, R.[n] , McDonald, F.[e] , Fortpied, C.[p] , Clementel, E.[p] , Fournier, B.[p] , Rizzo, S.[q] , Fink, C.[r s] , Riesterer, O.[g t] , Peulen, H.[d u] , Andratschke, N.[g] , McWilliam, A.[v] , Gkika, E.[b c w] , Schimek-Jasch, T.[b c] , Grosu, A.-L.[b c] , Le Pechoux, C.[a] , Faivre-Finn, C.[v] , Nestle, U.[b w x]

Stereotactic Body Radiotherapy for Centrally Located Inoperable Early-Stage NSCLC: EORTC 22113–08113 LungTech Phase II Trial Results

(2024) *Journal of Thoracic Oncology*, 19 (9), pp. 1297-1309. Cited 19 times.

DOI: 10.1016/j.jtho.2024.05.366

[a] Department of Radiation Oncology, Gustave Roussy, Université Paris Saclay, Villejuif, France
[b] Department of Radiation Oncology, University Medical Center Freiburg, Faculty of Medicine, University of Freiburg, Freiburg, Germany
[c] German Cancer Consortium (DKTK), Partner Site Freiburg, Freiburg, Germany
[d] Department of Radiation Oncology, Catharina Hospital, Eindhoven, Netherlands
[e] Department of Radiotherapy, Royal Marsden NHS Foundation Trust/Institute of Cancer Research, Sutton, United Kingdom
[f] Department of Oncology and Radiotherapy, Guy's & St Thomas' NHS Foundation Trust, London, United Kingdom
[g] Department of Radiation Oncology, University Hospital Zurich, University of Zurich, Zurich, Switzerland
[h] Department of Radiation Oncology, Cliniques universitaires Saint-Luc, MIRO - IREC Lab, Brussels, Belgium
[i] Department of Radiation Oncology, Ghent University Hospital and Ghent University, Ghent, Belgium
[j] Department of Radiotherapy-Oncology, UZ Gasthuisberg Leuven, Leuven, Belgium
[k] KU Leuven, Laboratory of Experimental Radiotherapy, Leuven, Belgium
[l] Institut Sainte-Catherine, Service de radiothérapie, Avignon, France
[m] Department of Radiation Oncology, University Hospital Würzburg, Würzburg, Germany
[n] Department of Oncology and Radiotherapy, Medical University of Gdansk, Gdansk, Poland
[o] Department of Clinical Oncology, St. James's University Hospital, Leeds, United Kingdom
[p] EORTC, Headquarters, Brussels, Belgium
[q] Imaging Institute of Southern Switzerland, Ente Ospedaliero Cantonale, Università della Svizzera Italiana, Lugano, Switzerland
[r] Allgemeines Krankenhaus, AKH Celle, Celle, Germany
[s] Department of Radiology and Nuclear Medicine, University Medical Centre Mannheim, Heidelberg University, Mannheim, Germany
[t] Kantonsspital Aarau, Radio-Onkologie-Zentrum KSA-KSB, Aarau, Switzerland
[u] Department of Radiation Oncology, The Netherlands Cancer Institute, Amsterdam, Netherlands
[v] Division of Cancer Sciences, The Christie NHS Foundation Trust, University of Manchester, Manchester, United Kingdom
[w] Department of Radiation Oncology, University Hospital Bonn, University of Bonn, Bonn, Germany, Germany
[x] Department of Radiation Oncology, Kliniken Maria Hilf GmbH Mönchengladbach, Mönchengladbach, Germany

Abstract
Introduction: The international phase II single-arm LungTech trial 22113-08113 of the European Organization for Research and Treatment of Cancer assessed the safety and efficacy of stereotactic body radiotherapy (SBRT) in patients with centrally located early-stage NSCLC. Methods: Patients with inoperable non-metastatic central NSCLC (T1-T3 N0 M0, ≤7cm) were included. After prospective central imaging review and radiation therapy quality assurance for any eligible patient, SBRT (8 × 7.5 Gy) was delivered. The primary endpoint was freedom from local progression probability three years after the start of SBRT. Results: The trial was closed early due to poor accrual related to repeated safety-related pauses in recruitment. Between August 2015 and December 2017, 39 patients from six European countries were included and 31 were treated per protocol and analyzed. Patients were mainly male (58%) with a median age of 75 years. Baseline comorbidities were mainly respiratory (68%) and cardiac (48%). Median tumor size was 2.6 cm (range 1.2–5.5) and most cancers were T1 (51.6%) or T2a (38.7%) N0 M0 and of squamous cell origin (48.4%). Six patients (19.4%) had an ultracentral tumor location. The median follow-up was 3.6 years. The rates of 3-year freedom from local progression and overall survival were 81.5% (90% confidence interval [CI]: 62.7%–91.4%) and 61.1% (90% CI: 44.1%–74.4%), respectively. Cumulative incidence rates of local, regional, and distant progression at three years were 6.7% (90% CI: 1.6%–17.1%), 3.3% (90% CI: 0.4%–12.4%), and 29.8% (90% CI: 16.8%–44.1%), respectively. SBRT-related acute adverse events and late adverse events ≥ G3 were reported in 6.5% (n = 2, including one G5 pneumonitis in a patient with prior interstitial lung disease) and 19.4% (n = 6, including one lethal hemoptysis after a lung biopsy in a patient receiving anticoagulants), respectively. Conclusions: The LungTech trial suggests that SBRT with 8 × 7.5Gy for central lung tumors in inoperable patients is associated with acceptable local control rates. However, late severe adverse events may occur after completion

of treatment. This SBRT regimen is a viable treatment option after a thorough risk–benefit discussion with patients. To minimize potentially fatal toxicity, careful management of dose constraints, and post-SBRT interventions is crucial. © 2024 International Association for the Study of Lung Cancer

Author Keywords
Lung cancer; NSCLC; Stereotactic ablative radiotherapy; Thoracic oncology

Index Keywords
amiodarone, cyclophosphamide plus doxorubicin plus prednisolone plus rituximab plus vincristine, docetaxel, fluorodeoxyglucose; acute heart infarction, adenocarcinoma, adenoid cystic carcinoma, adult, aged, alcohol consumption, Article, atrial fibrillation, breast cancer, cancer chemotherapy, cancer radiotherapy, cancer staging, cardiovascular disease, chronic obstructive lung disease, clinical article, clinical examination, comorbidity, computer assisted tomography, coronavirus disease 2019, cumulative incidence, current smoker, disease free survival, drug safety, dyspnea, echinococcosis, ECOG Performance Status, emphysema, endobronchial ultrasonography, esophagus, European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30, ex-smoker, female, fine needle aspiration biopsy, follow up, glioblastoma, hemoptysis, human, intensity modulated radiation therapy, interstitial lung disease, Kaplan Meier method, lung angiography, lung biopsy, lung cancer, lung embolism, lung infection, lung ventilation, male, middle aged, never smoker, non small cell lung cancer, nuclear magnetic resonance imaging, overall survival, phase 2 clinical trial, physical examination, planning target volume, pneumonia, positron emission tomography, probability, quality control, quality of life, radiation dose, renal cell carcinoma, retrospective study, sensitivity analysis, squamous cell carcinoma, stereotactic body radiation therapy, tumor volume, volumetric modulated arc therapy, cancer staging, clinical trial, lung tumor, multicenter study, pathology, procedures, prospective study, radiosurgery, radiotherapy, surgery, very elderly; Aged, Aged, 80 and over, Carcinoma, Non-Small-Cell Lung, Female, Humans, Lung Neoplasms, Male, Middle Aged, Neoplasm Staging, Prospective Studies, Radiosurgery

Correspondence Address
Nestle U.; Department of Radiation Oncology, Germany; email: ursula.nestle@mariahilf.de

Publisher: Elsevier Inc.

ISSN: 15560864
PubMed ID: 38788924
Language of Original Document: English
Abbreviated Source Title: J. Thorac. Oncol.
2-s2.0-85196769149
Document Type: Article
Publication Stage: Final
Source: Scopus