ADVANCED THORACIC SURGERY

EDITORS

Akın Eraslan BALCI Hasan ERSÖZ Mustafa YÜKSEL

© Copyright 2021

The printing, publishing and sales rights of this book belong to Akademisyen Kitabevi A.Ş. All or parts of the book may not be reproduced, printed or distributed by mechanical, electronic, photocopying, magnetic paper and/or other methods without the permission of the said institution. Tables, figures and graphics cannot be used for commercial purposes without permission. This book is sold by the Turkish Ministry of Culture banner.

ISBN Cover and Page Design

978-625-7679-74-9 Typesetting and Cover Design by Akademisyen

Book Name Publisher Certificate Number

Advanced Thoracic Surgery 47518

ic ourgery

Printing and Bonding

Editors Printing press Vadi
Akın Eraslan BALCI

Hasan ERSÖZ Mustafa YÜKSEL

Bisac Code MED079000

Publication Coordinator DOI

Yasin Dilmen 10.37609/akya.19

WARNING

The information contained in this product is provided as a resource for licensed medical professionals only. It should not be used for professional medical advice or medical diagnosis of any subject. It does not create a doctor-patient, therapist-patient and/or any other healthcare service relationship between the Academician Bookstore and the recipient. This product is not a substitute or substitute for professional medical judgments. Akademisyen Kitabevi and its affiliated companies, authors, participants, partners and sponsors are not responsible for injuries and/or damages to humans and devices arising from all applications based on product information.

Where medicines or other chemicals are prescribed, the reader is advised to check the current product information provided by the manufacturer for each drug to determine the recommended dosage, the duration of the drug to be administered, the method and contraindications. It is the physician's own responsibility to determine the dose and the most appropriate treatment for the patient, and to base the treating physician's knowledge and experience of the patient.

Akademisyen Kitabevi is not responsible for product modifications, repackaging and customizations made by a third party.

DISTRUBUTION Akademisyen Bookstore A.Ş.

Halk Sokak 5 / A Yenişehir/Ankara/Turkey Phone: +90 312 431 16 33 siparis@akademisyen.com

www.akademisyen.com

PREFACE

Today is mostly different than it was 30 years ago. New technologic applications and pharmacologic developments vastly changed thoracic surgery, enriching its operation spectrum. They have led to improved diagnostic applications and operative procedures. As advances occur results of operation are being examined better than old ages because of computer and network technology also. Somewhere online communication is being replacing face to face examination, was witnessed in Covid 19 period. Now, major surgery performed using the smallest incisions, causing the less pain and short hospital stay. Intensive care units can successfully supply the post-operative period. So, the hands of surgeon are stronger according to previous ages not only as a science but also as an art.

This textbook is an enhanced compilation of surgical procedures which increased as a number of kinds, and techniques as practiced. It includes all the relevant thoracic surgery knowledge as well as most essential etiologic, clinical and pathologic information.

This new book work is intended mainly is for practicing surgeons, surgical residents and medical students for their review and preparation for surgical procedures.

Although we believe that this book will provide a clear understanding of these manifestations, we invite our readers to inform us about differences of opinion they may have with its contents and areas that need improvement

> Editors Akın Eraslan BALCI Hasan ERSÖZ Mustafa YÜKSEL



Akın Eraslan BALCI

Aut viam inveniam aut faciam. I'll either find a way or make one.

Dr. Balci is currently a professor with tenure in the Department of Thoracic Surgery at the University of Euphrates, Elazig, Turkey. He received his MD degree from Istanbul University, Cerrahpaşa School of Medicine in 1988 and worked as a physician in various cities of Turkey. He has graduated as a Thoracic Surgery specialist with the study for pleural malign mesothelioma in Tigris University Medical School, Department of Cardiothoracic Surgery in 1997. Dr. Balci became an assistant professor at same University in 1999, an associate professor with tenure in 2004 in Euphrates university and professor with tenure in 2010.



Hasan ERSÖZ

Associate Professor Dr. Hasan ERSÖZ was born in 1985 in Diyarbakır, Turkey. He graduated from Dicle University Faculty of Medicine in 2008. He worked as a general practitioner in Çanakkale Ezine Uluköy Health Center as his first place of duty. Between January 2009 and March 2014, he completed his education of post-doctoral training at Dokuz Eylül University, Faculty of Medicine, Thoracic Surgery Department. He started to work as a specialist physician in İzmir Tepecik Training and Research Hospital in March 2014. After working at Manisa State Hospital for 4 months, he has started to work as the head and founding member of Izmir Katip Çelebi University, Faculty of Medicine, Department of Thoracic Surgery since August 8, 2016. He gained the title of associate professor in 2020.

He is currently the head of the Department of Thoracic Surgery, Faculty of Medicine, Izmir Katip Çelebi University. Dr. Ersöz conducts patient examinations in the Thoracic Surgery Clinic of İzmir Katip Çelebi University Atatürk Training and Research Hospital. He is married with two children.



Mustafa YÜKSEL

Prof. Dr. Mustafa Yuksel was born in Ankara, Turkey in 1953. He graduated from the Ankara University Medical Faculty in 1977. He had his postdoctoral training at the Ankara Ataturk Thoracic Diseases and Thoracic Surgery Center to become a cardiothoracic surgeon. Until 1990 he had worked at the Heybeliada Thoracic Diseases and Thoracic Surgery Center as a vice chief. In 1991 he had founded the Marmara University Medical Faculty, Department of Thoracic Surgery as the head of the department. He had worked together with Doctor Peter Goldstraw at the Royal Brompton National HeartLung Hospital in London, UK for one year from 1991 to 1992. He became an associate professor in 1994, and a professor in 1999. Having written many articles, chapters and books in the field, Doctor Yuksel has been working at the Demiroğlu Bilim University Medical Faculty, Department of Thoracic Surgery as a faculty member. Prof. Yuksel has become the President of the Turkish Thoracic Surgery Society in November 2012. He is also the founding member and the previous President of the Chest Wall International Group (CWIG).

CONTENTS

I-	PREOPERATIVE EVALUATION
1-	Preoperative Cardiopulmonary Functions and Operation
2-	Peroperative Evaluation In COPD Patients
3-	Thoracic Surgery In Respiratory Failure
4-	Anesthetic Principles of Airway Management and Intubation, Double Lumen Tubes
II-	INTRAOPERATIVE PATIENT MANAGEMENT IN SOME CHALLENGING CASES
5-	Concomitant Cardiac and Pulmonary Surgery
6-	Extracorporeal Membrane Oxygenation Support In Thoracic Surgery
7-	Thoracic Surgery During Covid-19 Pandemic 67 Berk ÇİMENOĞLU Recep DEMIRHAN
III-	MANAGEMENT OF POSTOPERATIVE COMPLICATIONS
8-	Complications After Lung Resections
9-	Acute Respiratory Failure and Acute Respiratory Distress Syndrome
10-	Management of Postoperative Pneumonia and Atelectasis

11-	Management of Prolonged Air-Leak Ümit AYDOĞMUŞ Figen TÜRK Gökhan YUNCU	101
12-	Management of Postoperative Empyema	109
13-	Bronchopleural Fistulas	115
14-	Management of Postoperative Bleeding	125
15-	New Generation Anticoagulation Usage In Thoracic Surgery and Management of Major Hemoptysis	131
16-	Management of Chylothorax	135
17-	Management of Sternal Dehiscence	145
IV-	MEDIASTINUM DISEASES	
18-	Myasthenia Gravis Caner Feyzi DEMİR İrem TAŞCI	157
19-	Thymoma and Staging Kenan Can CEYLAN Bengisu ARABACI	167
20-	Surgical Treatment of Thymic Tumors	175
21-	Intrathoracic Goiter	197
22-	Mediastinal Germ Cell Tumors	205
23-	Mediastinal Lymph Node Diseases	211
24-	Descending Necrotising Mediastinitis With Odontogenic Origin	221

25-	Neurogenic Tumors of The Mediastinum	. 227
	Akın Eraslan BALCI	
V-	ESOPHAGEAL DISEASES	
26-	Gastro Esophageal Reflux Disease and Surgical Treatment. Toni LERUT Hans Van VEER Philippe NAFTEUX Hasan ERSÖZ Willy COOSEMANS Lieven DEPYPERE	. 253
27-	Benign Esophageal Strictures Osman Cemil AKDEMİR Ömer SOYSAL	. 281
28-	Esophageal Cancer Diagnosis and Staging	. 289
29-	Surgical Techniques in Esophageal Cancer Ali Bilal ULAŞ Yener AYDIN Atilla EROĞLU	. 301
30-	Esophageal Leak and Rupture Atilla EROĞLU Ali Bilal ULAŞ Yener AYDIN	.323
VI-	TRACHEAL AND AIRWAY DISEASES	
31-	Tracheo-Esophageal Fistulas Hüseyin MELEK Gamze ÇETİNKAYA Cengiz GEBİTEKİN	. 341
32-	Postintubation Tracheal Stenosis and Subglottic Resection	.355
33-	Tracheobronchial Foreign Bodies	.375
34-	Surgical Treatment of Uncommon Tracheal Diseases	. 383
35-	Airway Tumors	. 391

Nezih Onur ERMERAK

VII-	- DIAPHRAGMATIC DISEASES	
36-	Congenital Diaphragmatic Hernia Hasan ERSÖZ Nezih Onur ERMERAK	. 403
37-	Diaphragmatic Eventration	. 411
38-	VATS Plication of Diaphragm	. 419
39-	Traumatic Rupture of The Diaphragm	. 425
40-	Effect of Diaphragm Pacing on Quality of Life: The State of Art Tunç LAÇİN	. 431
VII	I- PLEURAL DISEASES	
41-	Pneumothoraces	. 441
42-	Management of Pleural Effusion	. 463
43-	Childhood and Adult Empyema Thoracis	. 469
44-	Pleural Tumors	. 475
45-	Surgery For Malignant Pleural Mesothelioma-Egyptian View	. 487
IX-	CHEST WALL DISEASES	
46-	Primary Chest Wall Tumors	. 507
47-	Treatment of Pectus Excavatum Mustafa YÜKSEL Nezih Onur ERMERAK	. 517
48-	Treatment of Pectus Carinatum	. 525

49-	Poland Syndrome: Treatment and Management		
IX-	THORACIC TRAUMAS		
50-	Chest Wall Trauma	545	
51-	Intrathoracic Visceral Injuries	551	
XI-	MALIGNANT DISEASES OF THE LUNG		
52-	Classification of Lung Cancer	561	
53-	Incidence and Screening of Non Small Cell Lung Cancer	573	
54-	Lung Biopsies	579	
55-	Endobronchial Interventions: Tumors and Stenosis	585	
56-	New Diagnostic Techniques for Lung Cancer	591	
57-	Invasive Mediastinal Staging Akif TURNA Burcu KILIÇ İsmail SARBAY	601	
58-	Surgical Strategies for Lung Cancer	617	
59-	Uniportal VATS Lung Resections	629	
60-	- Robotic Pulmonary Resections		
61-	Transcervical Approach to The Mediastinum and The Lung	647	

62-	Surgical Treatment After Neoadjuvant / Induction Therapy	651
63-	Extended Resections Cemal AKER Muzaffer METİN	673
64-	Surgery in Superior Sulcus Tumors	683
65-	Multiple Primaries and Oligometastatic Cancer Necati ÇİTAK Özgür İŞGÖRÜCÜ	691
66-	Neuroendocrine Tumors of Lung	699
67-	Surgical Treatment of Lung Metastases	707
XII	- BENIGN DISEASES OF THE LUNG	
68-	Congenital Diseases of The Lung	717
69-	Bronchiectasis	729
70-	Hydatid Disease	737
71-	Pulmonary Aspergilloma Surgery	749
72-	Interventional Bronchoscopic Treatments In COPD	757
73-	Chronic Tromboembolic Pulmoner Hypertension Bihter SAYAN Bedrettin YILDIZELİ	767

XII	I- OTHER DISEASES RELATED TO THORACIC SURGERY	
74-	Thoracic Outlet Syndrome	783
	Erhan ÖZER	
	Hüseyin MELEK	
	Cengiz GEBİTEKİN	
75-	Hyperhidrosis	795
	Hüseyin YILDIRAN	
	Güven Sadi SUNAM	
	Murat ONCEL	
76-	Lung Transplantation	807
	İlhan İNCİ	

AUTHORS

Amr ABDELLATEEF

Assoc. Prof., Cardiothoracic Surgery, Mansoura University School of Medicine, Egypt.Consultant Thoracoscopic Surgery, Mansoura University School of Medicine, Egypt.

ORCID iD: 0000-0003-3861-8132

Erkan AKAR

Assoc. Prof., University Of Health Sciences, Bursa Yuksek Ihtisas Training And Research Hospital Clinic Of Thoracic Surgery

ORCID iD: 0000-0002-9113-8237

Tevfik İlker AKÇAM

Assoc. Prof., M.D. Ege University, Faculty of Medicine, Department of Thoracic Surgery, Izmir, Turkey,

ORCID iD: 0000-0001-7108-9469

Osman Cemil AKDEMİR

Specialist, MD., Bezmialem Vakıf University, Faculty of Medicine, Department of Thoracic Surgery, İstanbul ORCID iD: 0000-0002-2046-1782

Cemal AKER

MD, Department of Thoracic Surgery, Health Sciences University, Yedikule Chest Diseases and Thoracic Surgery Education and Research Hospital, Istanbul ORCID iD: 0000-0003-1269-7442

Murat AKKUŞ

Op. Dr. Department of Thoracic Surgery, S.B.U. Mehmet Akif Ersoy Thoracic and Cardiovascular Surgery Training and Research Hospital, İstanbul, Turkey, ORCID iD: 0000-0002-3762-6328

Ceyda ANAR

Assoc. Prof. Izmir Katip Celebi University, School Of Medicine, Department Of Internal Medicine, Department Of Thoracic Diseases ORCID iD: 0000-0002-3922-5800

Tuba APAYDIN

Op. Dr. Department of Thoracic Surgery, S.B.U. Mehmet Akif Ersoy Thoracic and Cardiovascular Surgery Training and Research Hospital, İstanbul, Turkey, ORCID iD: 0000-0003-2169-1173

Bengisu ARABACI

MD, University of Health Sciences, Dr. Suat Seren Chest Diseases and Thoracic Surgery Training and Research Hospital ORCID iD: 0000-0002-6609-2839

Erhan AYAN

Prof. Dr., Mersin University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0003-1889-4404

Salih Cüneyt AYDEMİR

Asst. Prof, KTO Karatay University Faculty of Medicine, Medicana Camlica Hospital ORCID iD: 0000-0002-9552-3255

Günay AYDIN

Prof. Dr. Istanbul University-Cerrahpasa, Cerrahpasa School Of Medicine, Department Of Internal Medicine, Department Of Thoracic Diseases ORCID iD: 0000-0001-8680-893X

Yener AYDIN

Prof., Department of Thoracic Surgery, Ataturk University School of Medicine, Erzurum, Turkey ORCID iD: 0000-0001-6523-2572

Ümit AYDOĞMUŞ

Department of Thoracic Surgery, Medical Faculty of Pamukkale University, Denizli, Turkey ORCID iD: 0000-0002-4460-4741

Akın Eraslan BALCI

FETCS, Professor of Thoracic Surgery, Fırat University Hospital, Elazığ, Turkey ORCID iD: 0000-0002-4598-0220

Cenk BALTA

Asst. Prof. Balikesir University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery, Balikesir ORCID iD: 0000-0002-4073-8101

Mesut BAYRAKTAROĞLU

Dr., İstanbul Aydın University Faculty of Medicine, Florya Medical Park Hospital ORCID iD: 0000-0002-9063-1118

Atilla CAN

Asst. Prof. Selcuk University School Of Medicine, Department of Thoracic Surgery, Konya, ORCID iD: 0000-0002-9603-2861

Funda CANSUN

MD, University of Health Sciences, Dr. Suat Seren Chest Disease and Thoracic Surgery Research and Education Hospital, Thoracic Surgery Clinic, Izmir, Turkey ORCID iD: 0000-0002-1205-2073

Ekin Ezgi CESUR

MD, VKV American Hospital ORCID iD: 0000-0002-3507-1621

Kenan Can CEYLAN

Prof., University of Health Sciences, Dr. Suat Seren Chest Disease and Thoracic Surgery Research and Education Hospital, Thoracic Surgery Clinic, Izmir, Turkey

ORCID iD: 0000-0003-0173-317X

Efsun Gonca UĞUR CHOUSEIN

MD, University of Health Sciences Yedikule Chest Diseases and Thoracic Surgery Training and Research Hospital, Department of Pulmonology ORCID iD: 0000-0002-8029-6627

Willy COOSEMANS

MD, PhD Assistant Professor of Surgery Faculty of Medicine, Department of Thoracic Surgery, University Hospitals Leuven, Leuven Belgium, Department of chronic diseases and metabolism (CHROMETA), laboratory for respiratory diseases and thoracic surgery (BREATHE), KU Leuven, Leuven, Belgium

ORCID iD: 0000-0002-0958-0924

Ufuk ÇAĞIRICI

Prof., M.D. Ege University, Faculty of Medicine, Department of Thoracic Surgery, Izmir, Turkey, ORCID iD: 0000-0001-7827-793X

Ali ÇELİK

Assoc. Prof. Gazi University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0001-5385-6492

İlknur AYTEKİN ÇELİK

Assoc. Prof. Ankara Yıldırım Beyazıt University Faculty of Medicine, Department of Thoracic Surgery ORCID iD: 0000-0003-0754-680X

Erdoğan ÇETİNKAYA

Prof, Dr, University of Health Sciences Turkey, Yedikule Chest Diseases and Thoracic Surgery Education, Istanbul ORCID iD: 0000-0002-0891-0020

Gamze ÇETİNKAYA

Dr. Uludag University, School of Medicine, Department of Thoracic Surgery, Bursa, Turkey ORCID iD: 0000-0002-4848-1566

Berk ÇİMENOĞLU

Op. Dr. Istanbul Kartal Dr. Lutfi Kirdar City Hospital; Thoracic Surgery Clinic ORCID iD: 0000-0002-9123-8203

Necati ÇİTAK

Assoc. Prof. Dr. Bakirkoy Dr. Sadi Konuk Research and Education Hospital Thoracic Surgery Department Istanbul Turkey

ORCID iD: 0000-0003-4122-9197

Salih ÇOKPINAR

Asst Prof, Aydın Adnan Menderes University, School of Medicine Department of Thoracic Surgery ORCID iD: 0000-0002-1251-0759

Caner Feyzi DEMİR

Prof., Firat University, School of Medicine, Department of Neurology, ORCID iD: 0000-0002-2861-2418

Recep DEMİRHAN

Prof. Dr. Istanbul Kartal Dr. Lutfi Kirdar City Hospital; Thoracic Surgery Clinic ORCID iD: 0000-0003-4424-5918

Lieven DEPYPERE

MD, PhD, FEBTS, FEBS/OG Assistant Professor of Surgery Faculty of Medicine, Department of Thoracic Surgery, University Hospitals Leuven, Leuven Belgium Department of chronic diseases and metabolism (CHROMETA), laboratory for respiratory diseases and thoracic surgery (BREATHE), KU Leuven, Leuven, Belgium ORCID iD: 0000-0001-8230-5649

Betül İkbal DOĞAN

MD., Izmir Katip Celebi University, School of Medicine, Department Of Internal Medicine, Department Of Thoracic Diseases ORCID iD: 0000-0001-9087-4921

Mahmut Talha DOĞRUYOL

MD, Manisa City Hospital, Department of Thoracic Surgery ORCID iD: 0000-0003-0875-8409

Koray DURAL

Prof., Kirikkale University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0001-7896-4289

Hussein ELKHAYAT

Dr. Assiut University, Faculty of Medicine, Cardiothoracic surgery, Assiut, Egypt. ORCID iD: 0000-0002-0090-1189

Hany Hasan ELSAYED

Dr., Thoracic Surgery Department, Faculty of Medicine, Ain Shams University ORCID iD: 0000-0002-7597-6070

Sina ERCAN

Prof., Yeditepe University, School Of Medicine, Department Of Surgical Medical Sciences, Head Of Department Of Thoracic Surgery ORCID iD: 0000-0001-6319-4357

Nezih Onur ERMERAK

Asst.Prof. M.D Marmara University;Faculty of Medicine. Department of Thoracic Surgery,Istanbul/Turkey

ORCID iD: 0000-0003-1939-3222

Atilla EROĞLU

Prof., Department of Thoracic Surgery, Ataturk University School of Medicine, Erzurum, Turkey ORCID iD: 0000-0003-1357-2676

Hasan ERSÖZ

MD, Associate Professor of Surgery Faculty of Medicine, Department of Thoracic Surgery, Izmir Katip Çelebi University Ataturk Training and Research Hospital, Izmir Turkey ORCID iD: 0000-0001-9877-7595

Serdar EVMAN

Assoc.Prof. Istanbul Sureyyapasa Chest Diseases and Thoracic Surgery Training And Research Hospital ORCID iD: 0000-0002-1672-966X

Cengiz GEBİTEKİN

Prof. Dr. Uludag University, School Of Medicine, Department of Thoracic Surgery, Bursa, Turkey ORCID iD: 0000-0001-8718-9499

Travis C GERACİ

MD Fellow Department of Cardiothoracic Surgery New York University, Langone Health ORCID iD: 0000-0002-2660-5214

Suat GEZER

Prof. Dr. Cukurova University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0002-8476-8839

Sule GÜL

MD, University of Health Sciences Turkey, Yedikule Chest Diseases and Thoracic Surgery Education, Istanbul

ORCID iD: 0000-0002-7162-2611

Selçuk GÜRZ

Asst Prof, Ondokuz Mayis University Faculty of Medicine, Department of Thoracic Surgery Samsun ORCID iD: 0000-0003-4584-4840

Maiada HASHEM

Dr. Assiut University, Faculty of Medicine, Chest disease department, Assiut, Egypt. ORCID iD: 0000-0001-7179-5865

Seray HAZER

SBÜ Atatürk Chest Diseases and Chest Surgery Training and Research Hospital ORCID iD: 0000-0003-1474-5591

İlhan İNCİ

Prof., University of Zurich, University Hospital, Department of Thoracic Surgery, Zurich Switzerland ORCID iD: 0000-0003-3937-770

Özgür İŞGÖRÜCÜ

Senior. Dr. Bakirkoy Dr. Sadi Konuk Research and Education Hospital Thoracic Surgery Department Istanbul Turkey ORCID iD: 0000-0001-7325-0412

Berşan KARADEDE

Dent., İzmir Katip Çelebi University Faculty of Dentistry Department of Orthodontics, ORCID iD: 0000-0001-9500-2188

M. İrfan KARADEDE

Prof. Dr., İzmir Katip Çelebi University Faculty of Dentistry Department of Orthodontics, ORCID iD: 0000-0002-4749-2167

Nurettin KARAOĞLANOĞLU

Prof Dr., Ankara Yıldırım Beyazıt University Faculty of Medicine, Department of Thoracic Surgery ORCID iD: 0000-0003-2827-6044

Şeyda ÖRS KAYA

Assoc. Prof., Dr Suat Seren Chest Diseases And Chest Surgery Training And Research Hospital ORCID iD: 0000-0002-0751-6240

Burcu KILIÇ

Asst. Prof. Istanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, Department of Thoracic Surgery

ORCID iD: 0000-0001-6186-8055

Ulaş KUMBASAR

Assoc. Prof., Yale University School of Medicine Department of Cardiothoracic Surgery ORCID iD: 0000-0003-0616-1326

Mustafa KUZUCUOĞLU

Assoc. Prof. Izmir Katip Celebi University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery, İzmir ORCID iD: 0000-0001-9889-0061

Tunc LAÇİN

Assoc. Prof. MD, Department of Thoracic Surgery, Faculty of Medicine, Marmara University, Istanbul, Turkey

ORCID iD: 0000-0002-6584-7814

Toni LERUT

MD, PhD Emeritus Professor of Surgery Faculty of Medicine, Department of Thoracic Surgery, University Hospitals Leuven, Leuven Belgium Department of chronic diseases and metabolism (CHROMETA), laboratory for respiratory diseases and thoracic surgery (BREATHE), KU Leuven, Leuven, Belgium

ORCID iD: 0000-0002-8965-4283

Nejdiye MAZICAN

MD., Istanbul University-Cerrahpasa, Cerrahpaşa School Of Medicine, Department Of Internal Medicine, Department Of Thoracic Diseases ORCID iD: 0000-0002-4058-3154

Hüseyin MELEK

Assoc. Prof. Dr. Uludag University, School of Medicine, Department of Thoracic Surgery, Bursa, Turkey

ORCID iD: 0000-0003-1822-8153

Fatih METEROĞLU

Assoc. Prof., Dicle University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery, ORCID iD: 0000-0003-1490-1865

Muzaffer METİN

Prof. Department of Thoracic Surgery, Health Sciences University, Yedikule Chest Diseases and Thoracic Surgery Education and Research Hospital, Istanbul, Turkey

ORCID iD: 0000-0003-0804-2654

Philippe NAFTEUX

MD, PhD, FEBS-OG (hon) Assistant Professor of Surgery Faculty of Medicine, Department of Thoracic Surgery, University Hospitals Leuven, Leuven Belgium Department of chronic diseases and metabolism (CHROMETA), laboratory for respiratory diseases and thoracic surgery (BREATHE), KU Leuven, Leuven, Belgium ORCID iD: 0000-0002-1145-4812

İlhan OCAKÇIOĞLU

Assoc. Prof., Dr University of Health Sciences Şehit Prof. Dr. İlhan Varank Training and Research Hospital Department of Thoracic Surgery ORCID iD: 0000-0001-6597-6299

Murat ÖNCEL

Assoc. Prof., Selcuk University Medical Faculty, Department of Thoracic Surgery, Konya, Turkey. ORCID iD: 0000-0003-4302-9615

Funda ÖZ

MD. Dicle University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0002-1224-0226

Erhan ÖZER

MD., Uludag University, School of Medicine, Department of Thoracic Surgery, Bursa, Turkey ORCID iD: 0000-0002-2228-6439

Kadir Burak ÖZER

MD, İstanbul Kartal Dr. Lutfi Kirdar City Hospital, Clinic of Thoracic Surgery ORCID iD: 0000-0002-9899-5581

Mehmet Akif ÖZGÜL

MD, University of Health Sciences Yedikule Chest Diseases and Thoracic Surgery Training and Research Hospital, Department of Pulmonology ORCID iD: 0000-0003-1110-6823

Ayten SARAÇOĞLU

Assoc. Prof. M.D. Desa FEAMS Department of Anesthesiology and Reanimation, Marmara University Medical School, Istanbul, Turkey ORCID iD: 0000-0002-1186-0933

Kemal Tolga SARAÇOĞLU

Prof MD, DESA FEAMS Head of Department of Anesthesiology and Reanimation, Health Sciences University Medical School Kartal Dr. Lütfi Kırdar Training and Research Hospital, Istanbul, Turkey ORCID iD: 0000-0001-9470-7418

İsmail SARBAY

MD, Istanbul University-Cerrahpaşa Cerrahpaşa Medical School, Department of Thoracic Surgery ORCID iD: 0000-0003-1557-6312

Bihter SAYAN

Specialist Dr., Marmara University School of Medicine, Department of Thoracic Surgery, Istanbul, Turkey ORCID iD: 0000-0002-9276-4408

Muhammet SAYAN

Asst. Prof. Gazi University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0002-5402-9031

Tolga Evrim SEVİNÇ

Dr., Uludag University, School Of Medicine, Department of Thoracic Surgery, Bursa, Turkey ORCID iD: 0000-0002-0150-0782

Celal Buğra SEZEN

Associate Prof., Department of Thoracic Surgery, Health Sciences University, Yedikule Chest Diseases and Thoracic Surgery Research and Education Hospital, Istanbul, Turkey ORCID iD: 0000-0002-2461-2031

Ömer SOYSAL

Prof., Bezmialem Vakıf University, Faculty of Medicine, Department of Thoracic Surgery, İstanbul ORCID iD: 0000-0003-3485-308X

Güven Sadi SUNAM

Prof. Dr., Selcuk University Medical Faculty, Department of Thoracic Surgery, Konya, Turkey. ORCID iD: 0000-0001-9655-0012

Atalay ŞAHİN

Assoc. Prof., Harran University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery, ORCID iD: 0000-0003-0498-4935

Onur ŞAHİN

Asst. Prof. Dr., İzmir Katip Çelebi University Faculty of Dentistry Department of Oral and Maxillofacial, ORCID iD: 0000-0001-7816-1443

Esra YAMANSAVCI ŞİRZAİ

MD, Marmara University Pendik Training and Research Hospital, Department of Thoracic Surgery, Istanbul, ORCID iD: 0000-0002-2262-4274

İrem TAŞÇI

Asst. Prof., Malatya Turgut Ozal University, School of Medicine, Department of Neurology, ORCID iD: 0000-0001-7069-769X

Demet TURAN

MD, University of Health Sciences Yedikule Chest Diseases and Thoracic Surgery Training and Research Hospital, Department of Pulmonology ORCID iD: 0000-0002-2401-9385

Akif TURNA

Prof. Dr., Istanbul University-Cerrahpaşa Cerrahpaşa Medical School, Department of Thoracic Surgery ORCID iD: 0000-0003-3229-830X

Figen TÜRK

Clinic of Thoracic Surgery, Suat Seren Chest Diseases and Thoracic Surgery Research and Training Hospital, İzmir, Turkey ORCID iD: 0000-0002-1821-0001

Ali Bilal ULAŞ

Asst Prof., Department of Thoracic Surgery, Ataturk University School of Medicine, Erzurum, Turkey ORCID iD: 0000-0003-3880-2423

Serkan UYSAL

Op. Dr., Hacettepe University School of Medicine Department of Thoracic Surgery ORCID iD: 0000-0002-1152-2854

Refik ÜLKÜ

Prof., Dicle University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0001-5708-3431

Beyza KARADEDE ÜNAL

Asst. Prof. Dr., İzmir Katip Çelebi University Faculty of Dentistry Department of Orthodontics, ORCID iD: 0000-0002-0035-0444

Mehmet ÜNAL

MD., Izmir Katip Celebi University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery, İzmir ORCID iD: 0000-0001-5803-0518

Nuri ÜNAL

Dr., Private Oral and Maxillofacial Surgeon, İzmir, ORCID iD: 0000-0002-7017-0318

Hans Van VEER

MD, FEBS/OG Department of Thoracic Surgery University Hospitals Leuven, Leuven Belgium Department of chronic diseases and metabolism (CHROMETA), laboratory for respiratory diseases and thoracic surgery (BREATHE), KU Leuven, Leuven, Belgium ORCID iD: 0000-0003-1153-8298

ORCID ID. 0000-0003-1133-023

İrfan YALÇINKAYA

MD, Prof. University of Health Sciences, Sureyyapasa Chest Disease and Thoracic Surgery Research and Training Hospital, Department of Thoracic Surgery ORCID iD: 0000-0002-5860-4080

Hüseyin YILDIRAN

Asst. Prof. Selcuk University School Of Medicine, Department of Thoracic Surgery, Konya, ORCID iD: 0000-0003-0126-2531

Binnaz Zeynep YILDIRIM

MD, University of Health Sciences Yedikule Chest Diseases and Thoracic Surgery Training and Research Hospital, Department of Pulmonology ORCID iD: 0000-0002-2228-8215

Birsen Pınar YILDIZ

Prof. Dr. University of Health Sciences, Yedikule Thoracic Disease and Surgery Hospital ORCID iD: 0000-0002-6650-1495

Özgür Ömer YILDIZ

Asst. Prof. Yildirim Beyazit University, Faculty of Medicine, Department of Thoracic Surgery, Ankara ORCID iD: 0000-0001-7314-3131

Bedrettin YILDIZELİ

Prof. Marmara University, School Of Medicine, Department Of Surgical Medical Sciences, Department Of Thoracic Surgery ORCID iD: 0000-0002-1316-4552

Nurettin YİYİT

Assoc. Prof., University of Health Sciences, Faculty of Medicine, Department of Thoracic Surgery, Istanbul ORCID iD: 0000-0003-1671-7498

Banu YOLDAŞ

Assoc Prof., SBU İzmir Dr. Suat Seren Chest Diseases and Thoracic Surgery Education and Training Hospital, Thoracic Surgery Department, Izmir ORCID iD: 0000-0001-9139-0435

Gökhan YUNCU

Clinic of Thoracic Surgery, Kent Hospital, Izmir, Turkey ORCID iD: 0000-0001-8805-6073

Mustafa YÜKSEL

Prof. Dr., Emeritus Prof. of Marmara University, Lecturer of TC Demiroğlu Bilim University Medical School,

ORCID iD: 0000-0002-7561-0618

Michael ZERVOS

MD Associate Clinical Professor Director of Robotic Thoracic Surgery Department of Cardiothoracic Surgery New York University, Langone Health ORCID iD: 0000-0003-1228-3696