Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Conclusion

Our atlas enables reproducible delineation of the heart valves. Delineation of the heart and its substructures on AVE 4D-CT scans according to the existing atlases is feasible, with inter-observer variability similar to that reported in validation studies of these atlases on conventional noncontrast CT scans.

PO-1178 Treatment of stage III NSCLC in a developing country. Needs for improvement.

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Purpose or Objective

Lung cancer is the most common and fatal type of cancer in Albania. Still nowadays a high percentage of patients are diagnosed at advanced stage. This is a descriptive analysis that aim to describe the treatment of stage III NSCLC in real practice in a developing country.

Materials and Methods

From 2016 until 2019, 620 lung cancer patients are treated at the department of Oncology of University Hospital Mother Theresa. From them 248 patients (40%) were diagnosed with stage III NSCLC. The majority of this category of patients (80%) aged between 56-75 years and only 20% were between 35-55 years. Most of them 83% were men and 17% women. 44% of patients were diagnosed with stage IIIA, 46% with stage IIIB and 10% with stage IIIC.

Squamous cell carcinoma dominated in 58% of patients, adenocarcinoma in 35% and no specification in 8%.

Results

Treatment of our patients was heterogeneous. Only 17% of them underwent surgery, from which 14% had stage IIIA and 3% stage IIIB. Concurrent chemoradiotherapy was applied in 30% of patients (12.5% St IIIA, 16.5% St IIIB, 1% St IIIC). Only 2 patients were treated with concurrent chemoradiotherapy after surgery and they had stage IIIB. Sequential chemoradiotherapy was used in 16% of patients. Only with chemotherapy were treated 26% of patients and with only radiotherapy 5%. Palliative treatment was prescribed in 6% of patients regardless of age. No immunotherapy treatment is approved for unresectable stage III NSCLC.

Conclusion

In our daily practice the use of concurrent chemoradiotherapy for treatment of stage III NSCLC is not yet optimal. It reflects the lack of a decision-making by a multidisciplinary team. According to this analysis, treatment of stage III NSCLC should to be improved and based on clinical guidelines.

PO-1179 Radiation induced pneumonitis during COVID-19: artificial intelligence for differential diagnosis.

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Purpose or Objective

In 2019, the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was identified in Wuhan, China and in March 2020 the World Health Organization (WHO) declared the global public health emergency describing the situation as a pandemic. The most serious clinical entity of the respiratory syndrome associated with SARS-CoV-2 is a severe interstitial pneumonia. Radiation pneumonitis (RP) is a typical toxicity related to chemoradiation for locally advanced lung cancer patients. RP and SARS-CoV-2 interstitial pneumonia show overlapping clinical features and differential diagnosis maybe be challenging. The aim of this study is to test the performance of a deep learning algorithm in discriminating radiation pneumonitis (RP) from COVID-19 pneumonia.

Materials and Methods
Seventy patients were analysed, thirty-four affected by COVID-19 pneumonia and thirty-six by radiation therapy-related pneumonitis (RP group). The CT images were quantitatively analyzed by InferRead™ CT Lung (COVID-19) (Infervision, Europe GmbH, Wiesbaden, Germany), an Artificial Intelligence solution specifically developed for diagnosis and management support of COVID-19 pneumonia, based on an AI algorithm built on a novel deep convolutional neural network structure. Based on a preliminary analysis of the deep-learning algorithm, the cut-off value of the estimated risk probability of COVID-19 was set at levels higher than 30% (“COVID19 High Risk”), as the percentage of COVID-19 confirmed patients above this cut-off value was higher than 95%. Values of estimated risk probability below 30% were classified as “COVID19 Low Risk.”

Results

Most patients presenting RP were classified by the algorithm as “COVID19 Low Risk” (66.7%). All RP classified as “COVID19 High Risk” were ≥G3 (CTC AE vers. 4.0). The algorithm showed good accuracy in the detection of RP against COVID-19 pneumonia (sensitivity = 97.0%, specificity = 2%, AUC = 0.72). This accuracy increased when an estimated COVID-19 risk probability cut-off of 30% was applied (sensitivity 76%, specificity 63%, AUC = 0.84). The total lung volume involvement was higher in COVID 19 patients compared with RP group (mean= 105.54 cc, IQ range= 44.68-257.07 vs mean=29.14 cc, IQ range= 5.59-69.20, p <0.001). In patients pretreated with radiation therapy and actually presenting diffuse pneumonitis classified by AI as “COVID19 High Risk” a combination of dosimetric factors may help to identify RP (PPV increased from 60% to 99.8%).

Conclusion

Deep-learning algorithm can help to discriminate RP from COVID-19 pneumonia, classifying most RP as “Low-risk COVID19” (below the cut off value of COVID-19 risk probability of 30%). In patients classified as high risk, treated with radiation therapy also dosimetric factors should be taken into account.

目的或客观

小细胞肺癌 (SCLC) 代表了大约 15% 的所有肺癌，且是以外科高增殖性，对早转移和不良预后为特征。虽然多种治疗方法被应用于SCLC，2007年到2018年中，OS的中位数为16个月对于有限 - SCLC (1)。一个标准治疗基于TNM分期系统可能并不适合任何一种患者。识别出患者在高风险的复发和高死亡率由于疾病的价值也是在指导治疗中。因此，在这个复杂且异质性疾病组，它需要在期初进行预后评估，以个性化的方式分类和计划治疗。研究的目的在于预测OS与机器学习在有限- SCLC。

材料和方法

研究包括了66例于2007年到2018年诊断出的有限- SCLC。在OS的预测中，OS的中位数为16个月对于有限 - SCLC (1)。一个标准治疗基于TNM分期系统可能并不适合任何一种患者。识别出患者在高风险的复发和高死亡率由于疾病的价值也是在指导治疗中。因此，在这个复杂且异质性疾病组，它需要在期初进行预后评估，以个性化的方式分类和计划治疗。研究的目的在于预测OS与机器学习在有限- SCLC。

结果

患者和肿瘤特征在表1中列示。中位RT剂量为54 (45-64) Gy. 中位预后分组持续时间是 1.8 (2-3) Gy. 常用的CT方案是依托泊苷 + 紫杉醇。受三种变量影响OS的变量选自使用RT的患者，其中包括性别，PTV，预治疗的血清白蛋白和红细胞比容，NLR, BMI, KPS, RT剂量，CT周期数，T分期，N分期，TNM分期。在2018-2021年五年生存率21 (5-125) 个月。算法中选择有最高准确度的为SVC (Accuracy rate: 0.88, Confidence Interval: 0.74-1, ROC AUC: 0.83, sensitivity: 92%, specificity :75%). ROC AUC图在图1中给出。