Real-life patient management patterns in one of the largest Hungarian lung cancer centers

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BACKGROUND

With evaluating real-life data on lung cancer management, we aimed to target areas for development in our center.

METHODS

Cross-sectional analysis was performed on the data of all patients presented to the Multidisciplinary Tumor Board during one year (01.06.2019-31.05.2020).

Registered data:

- ✓ Age, sex,
- ✓ Smoking history, presence of chronic obstructive pulmonary disease (COPD),
- ✓ Cytology/histology, common driver mutations (epidermal growth factor receptor – EGFR, Kirsten rat sarcoma virus – KRAS, anaplastic lymphoma kinase – ALK, ROS proto-oncogene 1 – ROS-1, B-raf proto-oncogene – BRAF), expression of programmed death ligand-1 (PDL-1),
- ✓ Stage of the disease, performance status of the patient at the time of the diagnosis
- ✓ Therapy (surgical resection, radiotherapy, systemic oncotherapy) until December 31, 2020.

RESULTS 1

Out of **613 patients** total (*Figure 1*)**:**

- ⇢ **110 (17.9%) had no pathological verification** (main reasons behind that were low compliance, negative positron emission tomography – PET – scan, spontaneous regression, poor performance status and severe comorbidities - see *Figure 2*),
- ⇢ **60 (9.8%) patients were diagnosed with benign diseases or other malignancies** than primary lung cancer (e.g. sarcoidosis, tuberculosis, mesothelioma, lymphoma, metastases of other solid tumors),
- ⇢ **443 (72.3%) patients had primary lung cancer** (LC).

LC patients' median age was 68 years (range 38-91), **51.2% were female,** and **51.2% of the LC group had COPD**.

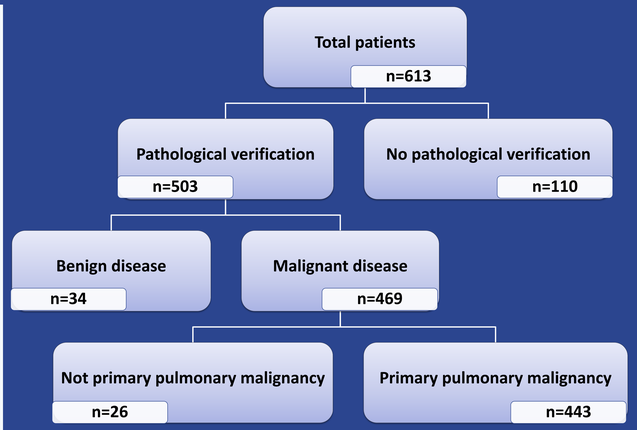

Figure 1. Patients presented to the Multidisciplinary Tumor Board from June 1, 2019 to May 31, 2020.

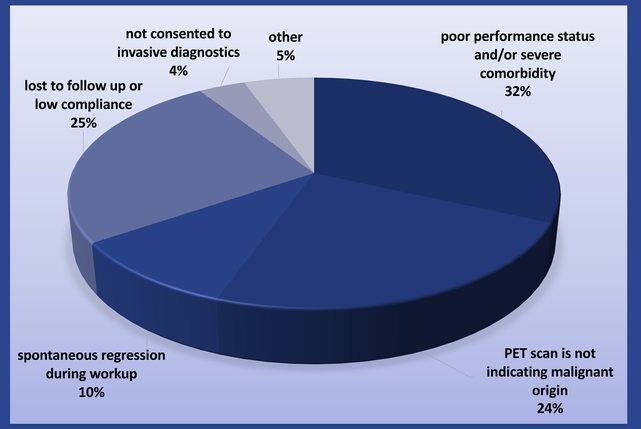

Figure 2. Reasons why 110 patients could not receive a pathological diagnosis.

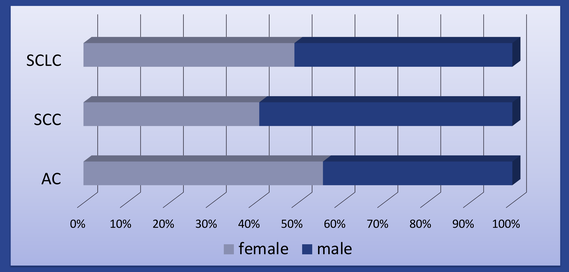

Figure 3. Sex in the histological subgroups.

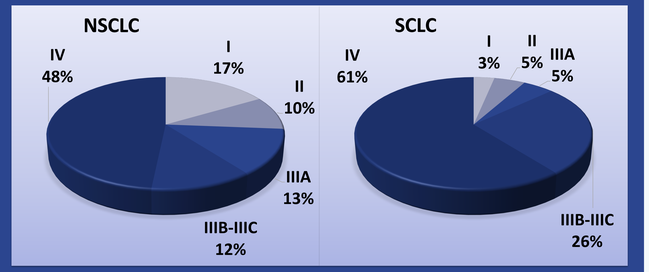

Figure 4. Stage of disease in NSCLC and SCLC patients at time of diagnosis.

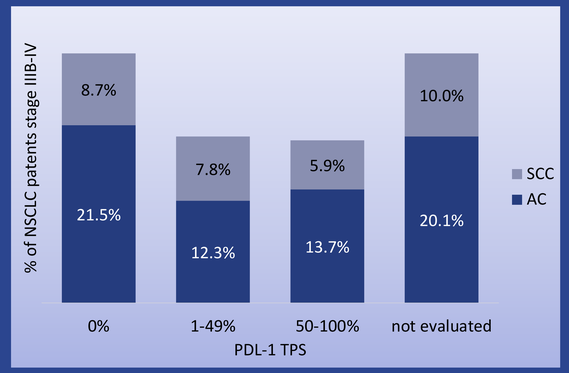

Figure 5. PDL-1 TPS in locally advanced or metastatic NSCLC.

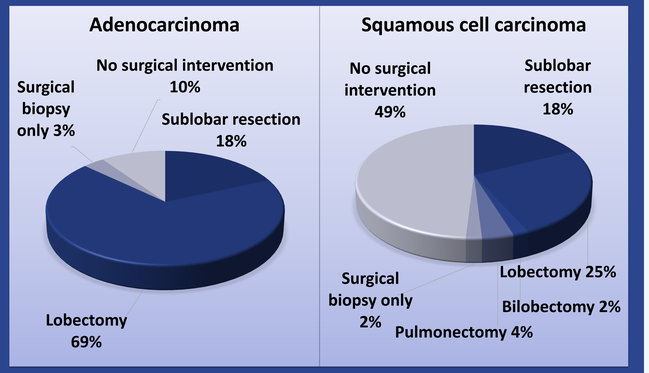

Figure 6. Surgical treatment in early stage (IA-IIIA) NSCLC.

RESULTS 2

Histological types were the following among the LC patients:

- ⇢ **Adenocarcinoma (AC): 54.2%**
- ⇢ **Squamous cell carcinoma (SCC): 27.5%**
- ⇢ **Small cell carcinoma (SCLC): 13.8%**
- ⇢ Other: 4.5%

See *Figure 3* for the prevalence of histological types in female and male patients with primary pulmonary malignancy.

Most LC patients (86.5%) had a good performance status (0-1 on the Eastern Cooperative Oncology Group – ECOG – scale) at the time of the cancer diagnosis, although a high number: **60.4% of non-small cell lung cancer (NSCLC) patients had locally advanced or metastatic disease** (stage IIIB-IV), and **60.7% of SCLC patients had extensive disease** (stage IV) at that time (*Figure 4)*.

See *Figure 5* for the PDL-1 expression (tumor proportion score – TPS) in locally advanced or metastatic NSCLC. Common driver mutations were found in the locally advanced or metastatic AC group as following:

- ⇢ **EGFR mutation: 8.8%** (evaluated in 88.5% of the group)
- ⇢ **KRAS mutation: 28.4%** (evaluated in 87.2% of the group)
- ⇢ **ALK mutation: 2%** (evaluated in 81.1% of the group)
- ⇢ **ROS-1 mutation: 1.4%** (evaluated in 54.1% of the group)
- ⇢ **BRAF mutation: 3.4%** (evaluated in 56.1% of the group)

Surgical resection with curative intent (*Figure 6)* was performed in **87%** of the patients with **early stage (IA-IIIA) AC, but only in 51% of the patients with early stage SCC.** In many SCC cases the patients were ineligible for surgery due to severe comorbidities – prevalence of COPD in all AC and SCC patients was 45.8% vs. 63.9%.

Immunotherapy was used **in 10.5%** of the locally advanced or metastatic NSCLC patients receiving systemic oncotherapy **in first, and 43.3% in second or third line.**

DISCUSSION

- There is a significant number of patients with **unverified lung abnormalities** due to low compliance, poor performance status and severe comorbidities, mainly COPD.
- **COPD is highly prevalent among LC patients**, which supports the focused screening for lung nodules in known COPD patients.
- **COPD as comorbidity presents a challenge in the optimal treatment of early stage LC, mainly SCC**. Irradiation and developing minimal-invasive procedures can play a significant role in these patients' care.
- Immunotherapy can gain more ground in the early management of locally advanced and metastatic NSCLC.

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All authors have declared no conflicts of interest.

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