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A Real-World Analysis of Treatment Patterns for First-Line Immunotherapies Among Danish Patients with Non-Small Cell Lung Cancer (NSCLC) and PD-L1 Expression ≥50%

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OBJECTIVES

First-line treatment for patients with NSCLC and PD-L1 expression ≥50% has evolved to include several immuno-therapies. Introduction of new treatment options has led to changes in Danish clinical guidelines (1). The objective of this study was to analyse treatment patterns over time in a Danish real-world setting.

METHODS

Data from May 15 2018 to February 28, 2023 were collected from the Danish National Hospital Medication Register, the National Patient Register and the Danish Pathology Register. Patients with non-squamous or squamous NSCLC and PD-L1 expression ≥50% who had received at least one administration of first-line mono-immunotherapy were included in the study cohort. Due to incomplete reporting to the Danish National Hospital Medication Register, which was entered into force in 2018, the cohort only included patients treated in the Capital Region of Denmark, the Zealand Region and the Central Denmark Region. Coverage compared to all lung cancer diagnoses with full procedure codes for either therapy in the National Patient Register was about 80%. Analysis of treatment patterns, including first mono-immunotherapy administration, average time between administrations, average dose per administration and average treatment length was conducted in non-squamous and squamous patients. Regional differences were explored.

	Non-Squamous	Squamous
Gender		
Female	206 (59.0%)	44 (38.6%)
Male	143 (41.0%)	70 (61.4%)
Age at first diagnosis		
Mean	70.3	71.0
Number of administrations per patient		
Mean	8.2	7.6
Regional distribution		
Central Jutland region	118 (33.8%)	40 (35.1%)
Central region of Denmark	127 (36.4%)	40 (35.1%)
Region Zealand	104 (29.8%)	34 (29.8%)
Stage at first diagnosis		
I-IIIA	12 (3.4%)	9 (7.9%)
IIIB-IV	64 (18.3%)	17 (14.9%)
Missing/Incomplete stage	273 (78.2%)	88 (77.2%)

Table 1: Demographic characteristics of patients with squamous and non-squamous NSCLC and a PD-L1 ≥ 50%

RESULTS

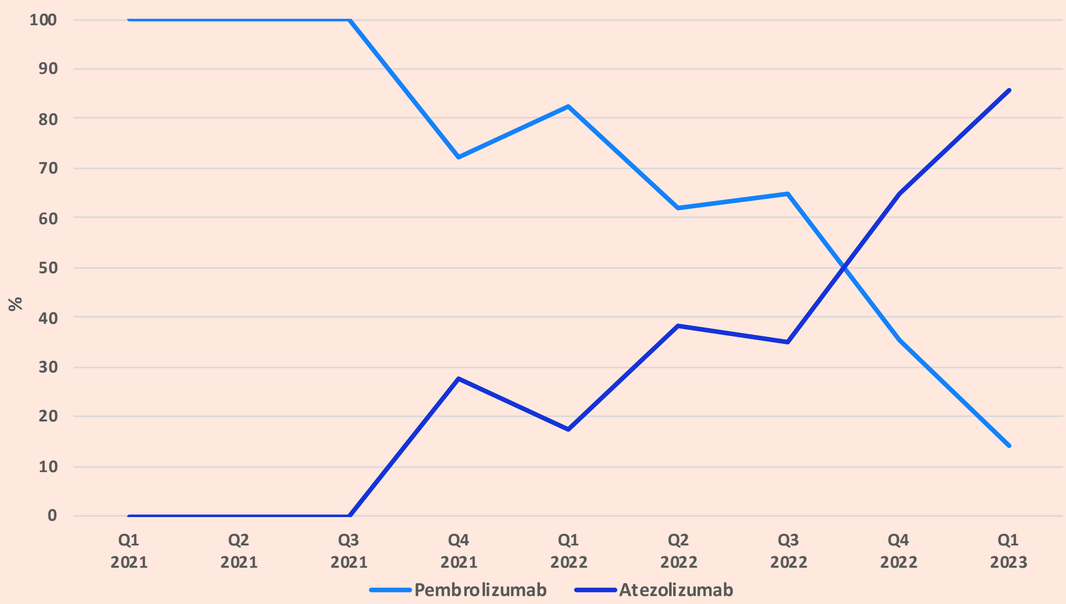

Figure 1: Market shares - share of new patients with non-squamous NSCLC and PD-L1 ≥ 50% in the Capital Region of Denmark, the Central Denmark Region and Region Zealand

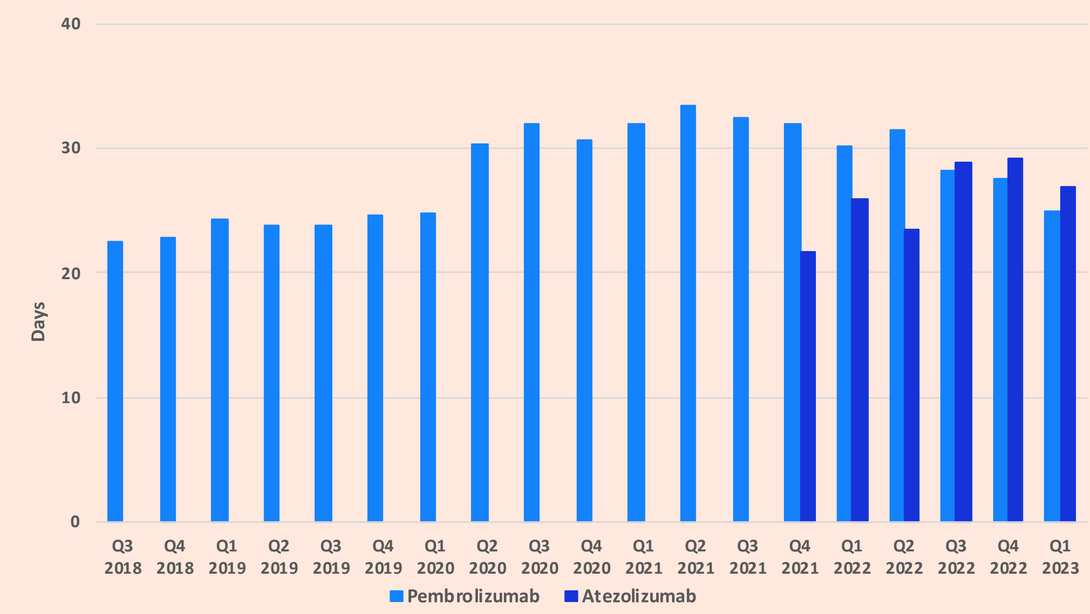

Figure 2: Average time between administrations for patients with non-squamous NSCLC and a PD-L1 ≥ 50% in the Capital Region of Denmark, the Central Denmark Region and Region Zealand

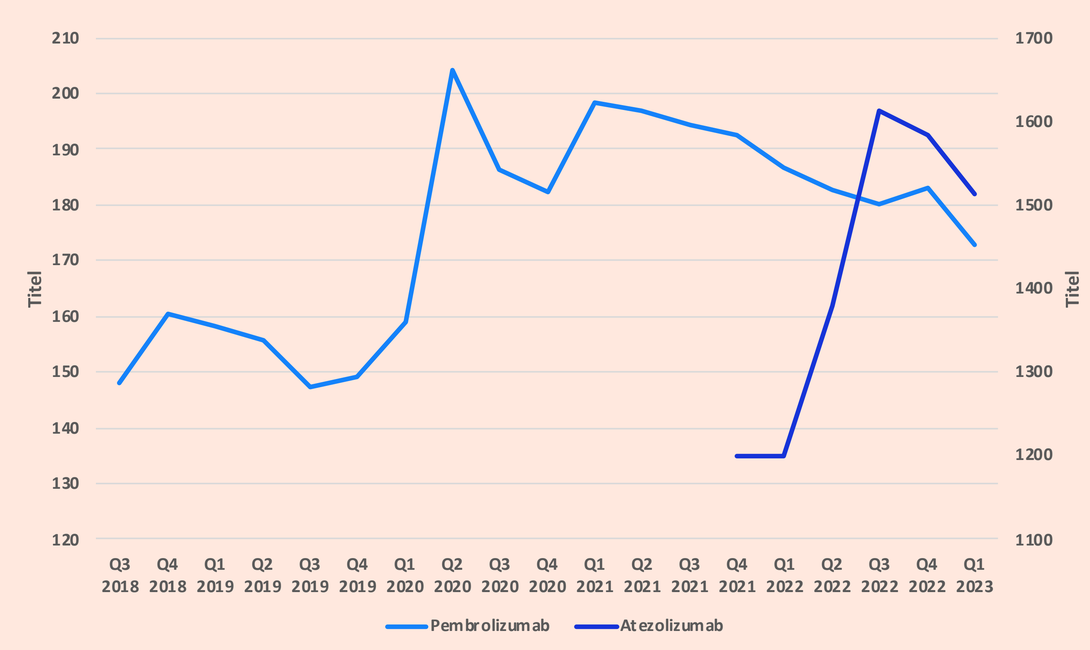

Figure 3: Average dose for patients with non-squamous NSCLC and a PD-L1 ≥ 50% in the Central Denmark Region

The study cohort comprised of 463 patients of which 75% had non-squamous histology and 25% had squamous histology. Mean age at diagnosis was 70.3 and 71.0 years in the non-squamous and squamous population, respectively. Mean number of administrations per patients was 8.2 and 7.6, respectively. Patients were distributed evenly across the three regions. The share of new non-squamous NSCLC patients treated with pembrolizumab decreased from 100% in the third quarter of 2021 to 14.3% in the first quarter of 2023, while the share treated with atezolizumab increased from 0% to 85.7% during the same period. The share for nivolumab is not presented due to masking (low number of observations). The average time between administrations were longer for pembrolizumab as compared to atezolizumab until the third quarter of 2022 (31.2 vs 23.7 days), but comparable thereafter (27.0 vs 28.3 days). In the same period, the average dose per administration decreased slightly for pembrolizumab (327.3 mg to 296.0 mg) while it increased for atezolizumab (1200.0 mg to 1512.4 mg). The mean treatment length was less than 1 year for both therapies.

DISCUSSION OF REGIONAL DIFFERENCES

The Central Denmark Region seemed to be the main driver of the changes observed, being the first region to initiate treatment with atezolizumab and introduce changes to the dose regimens. This encompasses expedited adherence to updated treatment recommendations and guidelines, and the distinctive utilization of a six-week interval dosing regimen for pembrolizumab within this region. Nevertheless, recent observations suggest a tendency to revert back to the three-week interval dosing schedule for pembrolizumab. A similar pattern of use was observed in the squamous population, however, opposite to the non-squamous population, average time between pembrolizumab administrations went from shorter to longer, and a slight increase in average dosing was observed. These results are not shown here.

Conclusion

These results provide insight into treatment use associated with first-line treatment of patients with NSCLC and PD-L1 expression ≥50% in a real-world setting. Overall, the treatment patterns showed adherence to Danish clinical guidelines with the fastest adaptation observed in the Central Denmark Region. The majority of patients treated today receive atezolizumab at the 4-week interval dosing option.

References

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CONTACT AND CONFLICT OF INTEREST

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Conflict of interest: Clugston DM, Beck C are employed by Roche Pharmaceuticals AS. Bjerregaard BK, Kristensen ES are employed by IQVIA Denmark.