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Mortality impact following the recent EU launch of numerous novel Non-Small Cell Lung Cancer (NSCLC) therapies between 2010-2020

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Background

- Non-Small Cell Lung Cancer (NSCLC) is the most common cancer of the lungs, which is either squamous or non-squamous
- The common gene mutations of NSCLC include TP 53, KRAS, EGFR, ALK, TP 53 & KRAS that account for nearly 70% of lung cancers
- Lung cancer is the most common cause of cancer death in European countries and is the leading cause of death in men
- In 2010, the NSCLC mortality rate in EU5 was 21/100,000
- Over the last 10 years, there have been numerous advances targeting NSCLC, which might have an impact on the mortality rate

Objectives

To assess the impact of novel therapies on overall mortality in NSCLC in the EU5 (France, Germany, Italy, Spain, and the United Kingdom) from 2010 to 2020

Methodology

- Conducted secondary research to identify NSCLC mortality trends in EU5 countries from 2010 to 2020
- EMA (European Medicines Agency) approved novel therapies targeting EGFR mutations, ALK mutations, ROS1 mutations, and PDL1 non-oncogenes/fusion proteins/biomarkers were investigated
- Systematically analyzed the impact of novel therapies on NSCLC mortality and summarized the results
- Literature search is limited to publicly available English-language publications in EU5 over the last 10 years

Findings

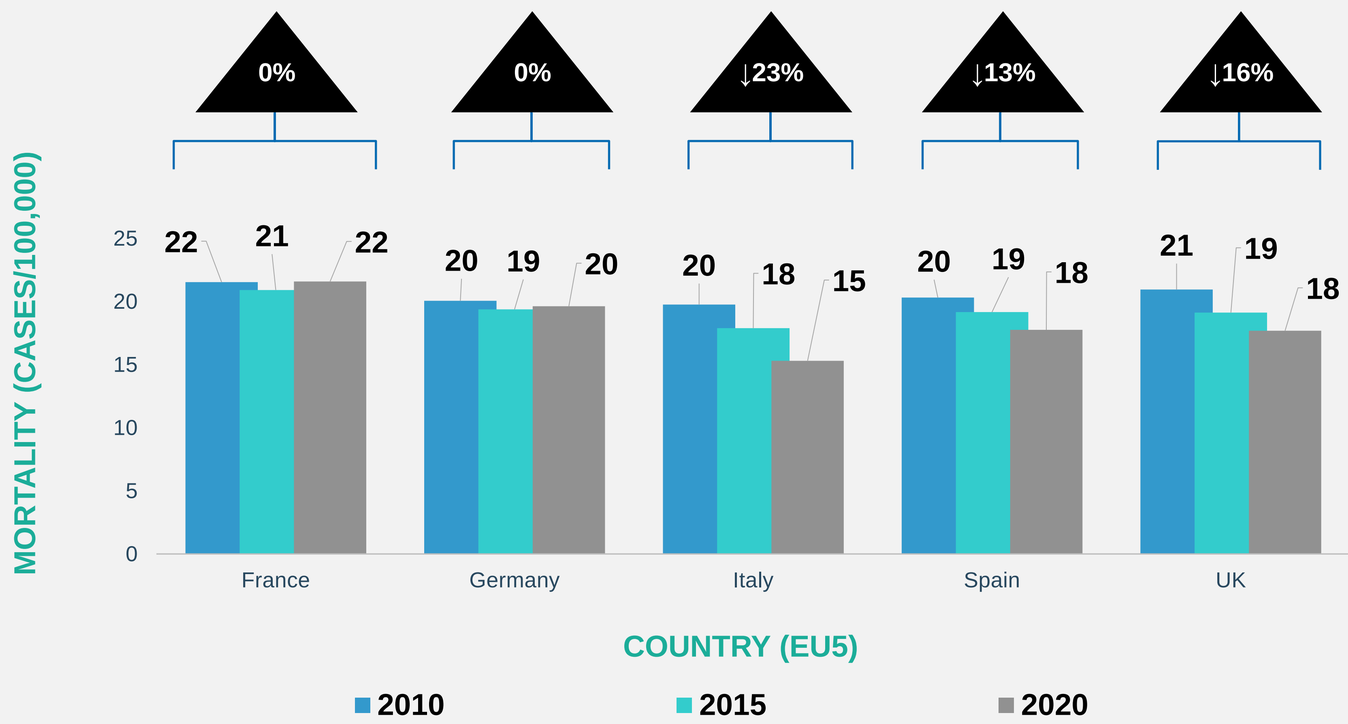
- The overall change in mortality among the EU5 from 2010–2020 was 10% (mortality decreased by 10%)
- Approximately 16 novel drugs (branded therapies) targeting various pathways – including EGFR, ALK, ROS 1 mutations as well as the PD L1 non-oncogene – gained EMA approval from the plethora of pipeline therapies in EU5 over the last 10 years
- A notable decrease in mortality was observed from 2010–2020 in Italy, Spain, and the UK, i.e., mortality rates decreased by 23%, 13%, and 16%, respectively, which could be due to the impact of novel branded therapies

Trends in NSCLC Mortality (deaths/100,000) in the EU5 from 2010 to 2020

EU 5	2010	2012	2014	2015	2016	2018	2020
	21.54	21.2	21.03	20.91	20.18	20.57	21.59
	20.06	20.06	19.59	19.38	19.29	19.46	19.63
	19.76	18.87	18.06	17.89	17.38	16.23	**15.3***
	20.31	20.18	19.25	19.16	19.25	18.1	**17.76***
	20.95	20.23	19.72	19.12	18.78	18.27	**17.68***
AVG	**20.52**	**20.10**	**19.53**	**19.29**	**18.97**	**18.52**	**18.39**

***Notable decrease in mortality; AVG=Average**

Impact of novel therapies on the mortality of NSCLC



% % change in mortality from 2010-2020

Discussion

- Lung cancer is the leading cause of cancer-related mortality in the EU5
- The recent launch of targeted therapies has gradually decreased the mortality rate in NSCLC patients
- However, no significant improvement was observed in France and Germany – potentially due to delays in early diagnosis, initiation of therapy, and huge burden of disease
- Despite treatment advances, there remains an unmet need within NSCLC overall, and especially within TP 53 and KRAS mutations

Research Limitations

- The effect estimates in the study are taken from the International Agency for Research on Cancer (IARC) Cancer Overtime database, which may have influenced the results in this study
- We propose a follow-up study to purely assess the impact of novel NSCLC therapies on mortality, especially in France and Germany

Conclusion

With the advent of target-specific therapies, NSCLC mortality has been gradually decreasing in EU5 over the last 10 years. Although these countries have already started optimizing care to reduce mortality, there is still a need for novel therapies which provide significant incremental benefits.

References

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