

Outcomes research on new Tyrosine Kinase Inhibitors for Non-Small Cell Lung Cancer

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INTRODUCTION

The information technologies development and their integration in healthcare processes brought a major role in data generation to pharmacy department. This massive data, also known as BIG DATA, is a powerful resource to initiate the measure of healthcare outcomes related with dispensed drugs.

Lung cancer therapeutics, in particular Non Small Cell Lung Cancer (NSCLC) has now a broad range of novel molecules which increase not only the survival of patients, but also their quality of life. Considering that the majority of these new drugs have the same levels of evidence in the international guidelines, we consider that it is of the uttermost importance to measure the health outcomes in our treated patients and develop novel processes to systematize the analysis process.

PURPOSE

To access the main health outcomes of patients who received new tyrosine kinase inhibitors (TKI) and to develop a tool which provides real life information based on the hospital environment to support the clinical decision.

METHODS

Every patient's data was collected from the electronic medical records and the registries from pharmaceutical consultation (See Fig.1), since 2013 until 2017. For each patient, we recorded the outcome, the performance status and the duration of the treatment. The main analysis outcome was the overall survival (OS). The survival analysis was done using IBM SPSS Statistics.

REFERENCES

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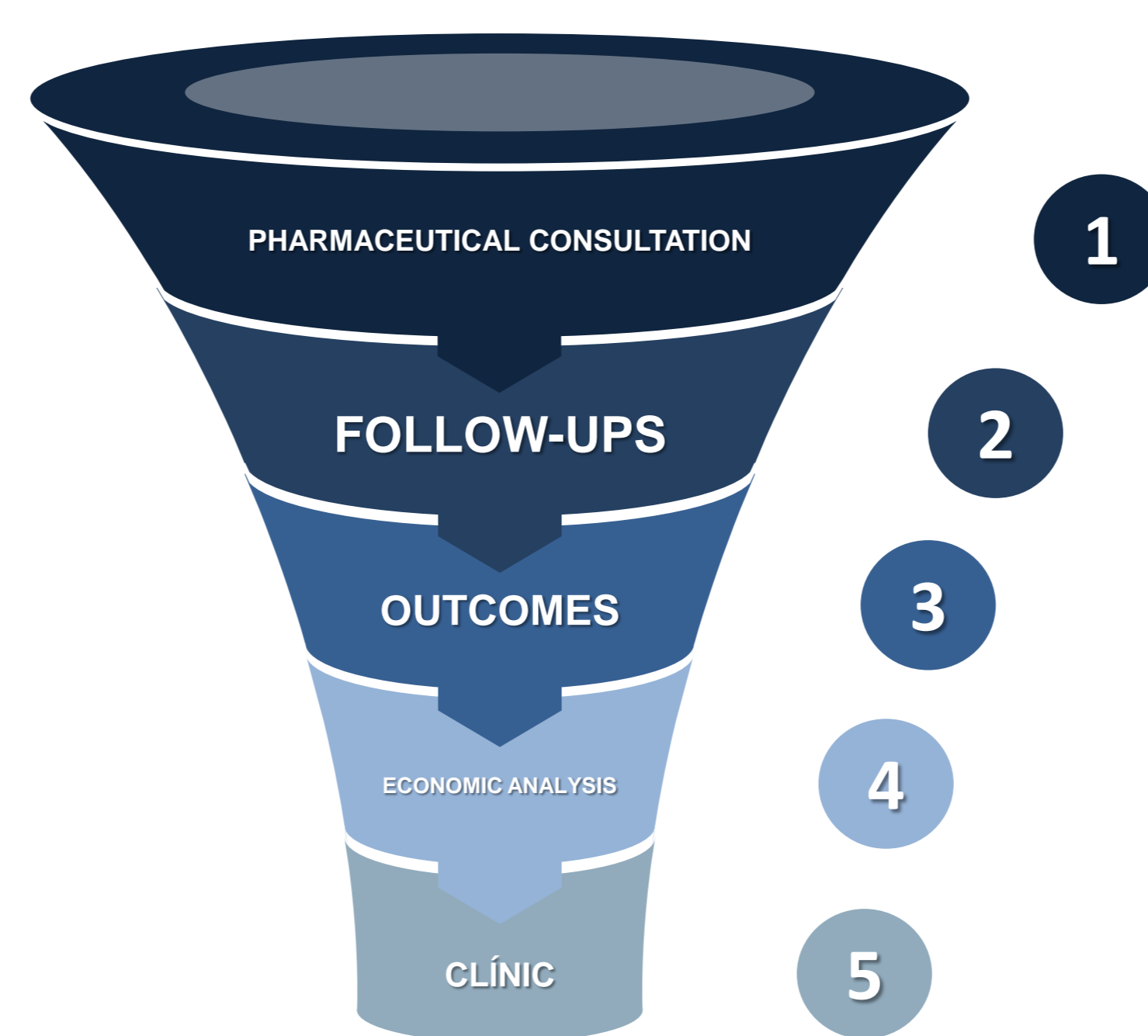
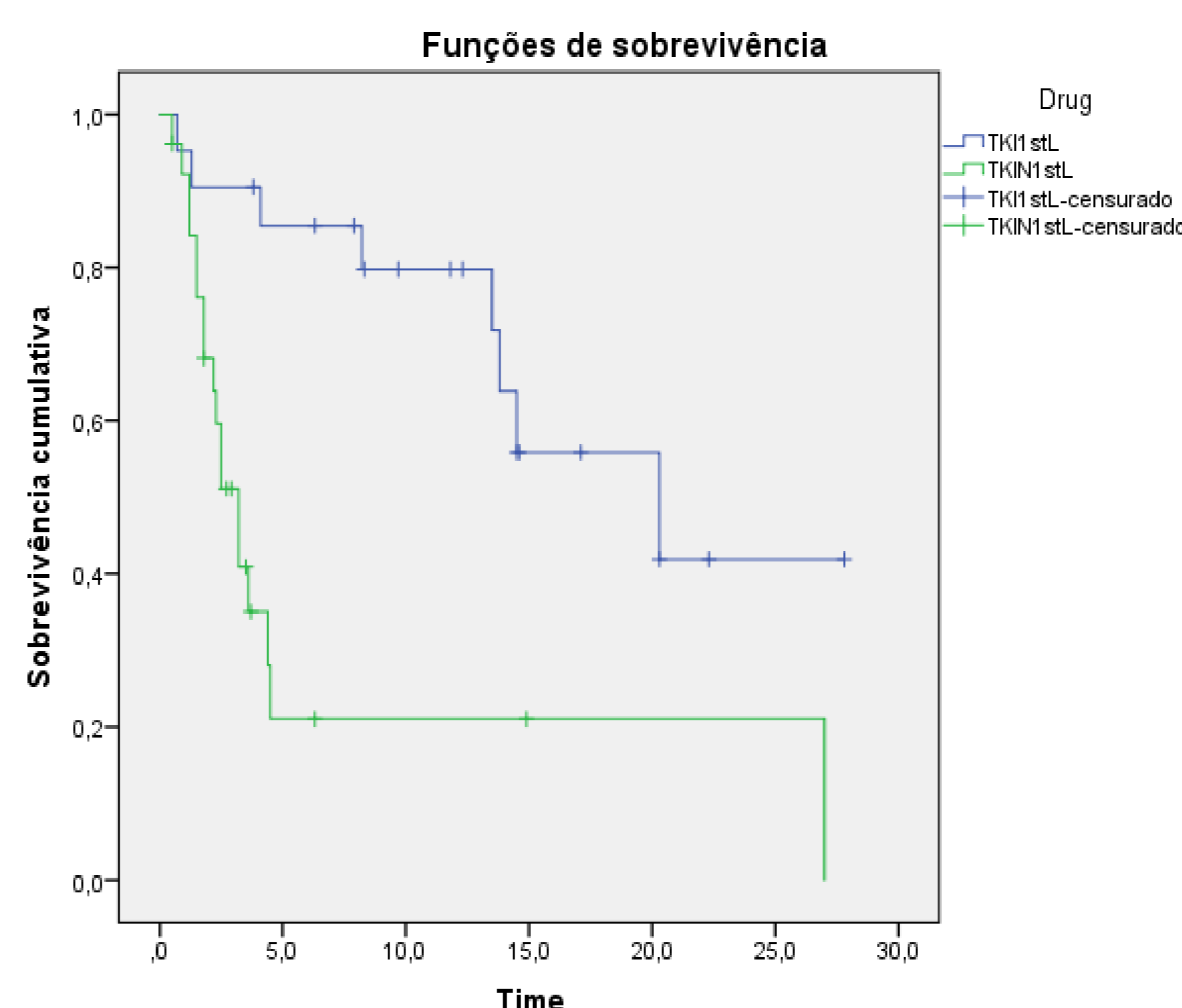


Fig 1: Flow process of our implemented outcomes system.

RESULTS

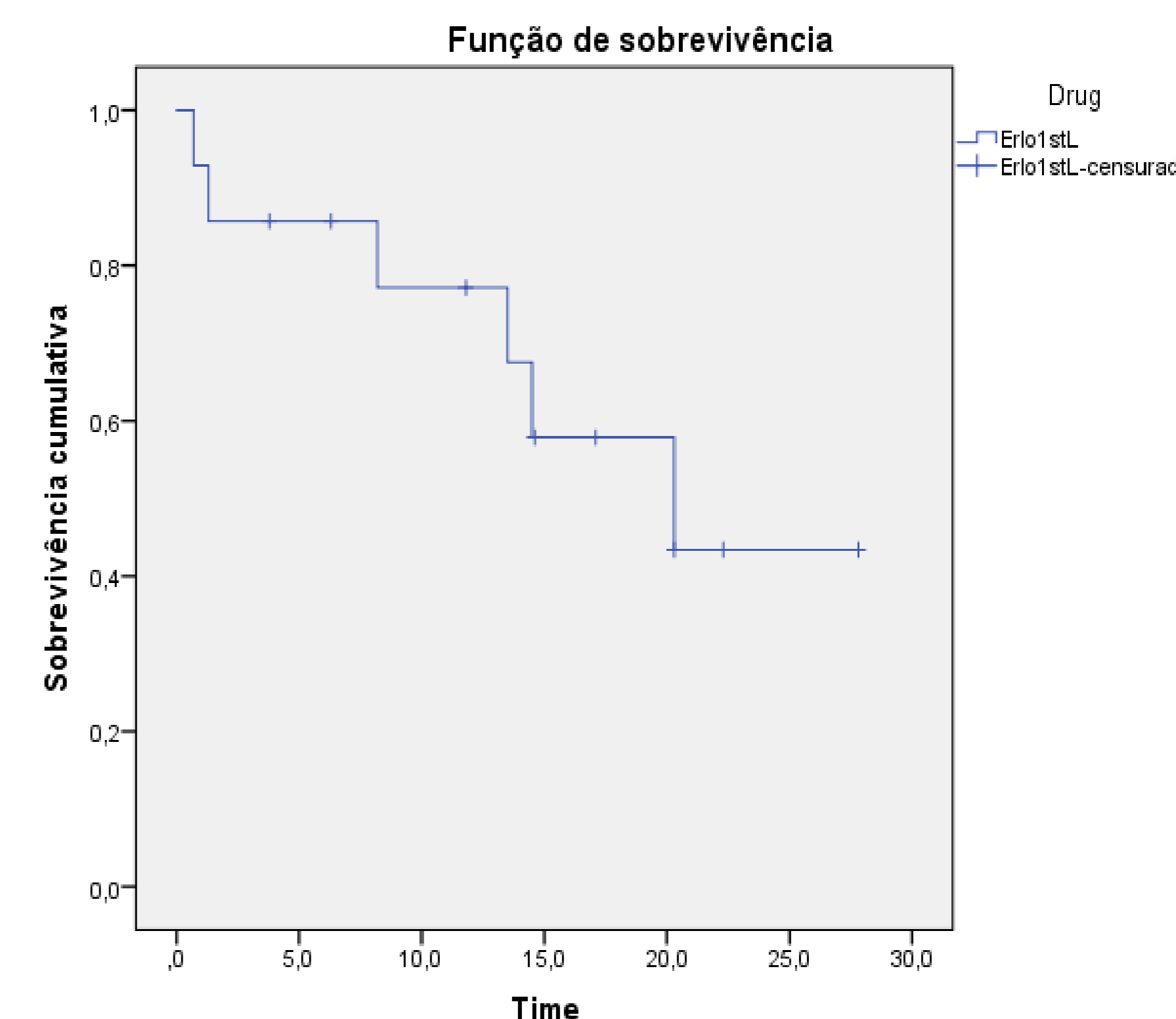
Of the EGFR+ patients, the majority received Erlotinib (n=42), either as 2nd/3rd-lines (n=30) or 1st-line (n=12). The amount of patients who did Gefitinib was smaller than Erlotinib (n=4). All the ALK+ patients were treated with Crizotinib (n=5).

The observed median survival was 20,3 months for TKI in 1st-line (n=21) and 3,2 months for 2nd/3rd-lines (n=30), with p<0,001 (see Graph 1). The median OS for Erlotinib in 1st-line was 21,3 months and 2,8 months for patients in 2nd/3rd-lines. For Crizotinib, the observed median OS was 13,8 months, with an 18 months follow up. The sample was too small for the Gefitinib survival.



Median OS for first line TKI (n=21) → 20,3 months
 Median OS for second and plus lines TKI (n=30) → 3,2 months
P<0,001

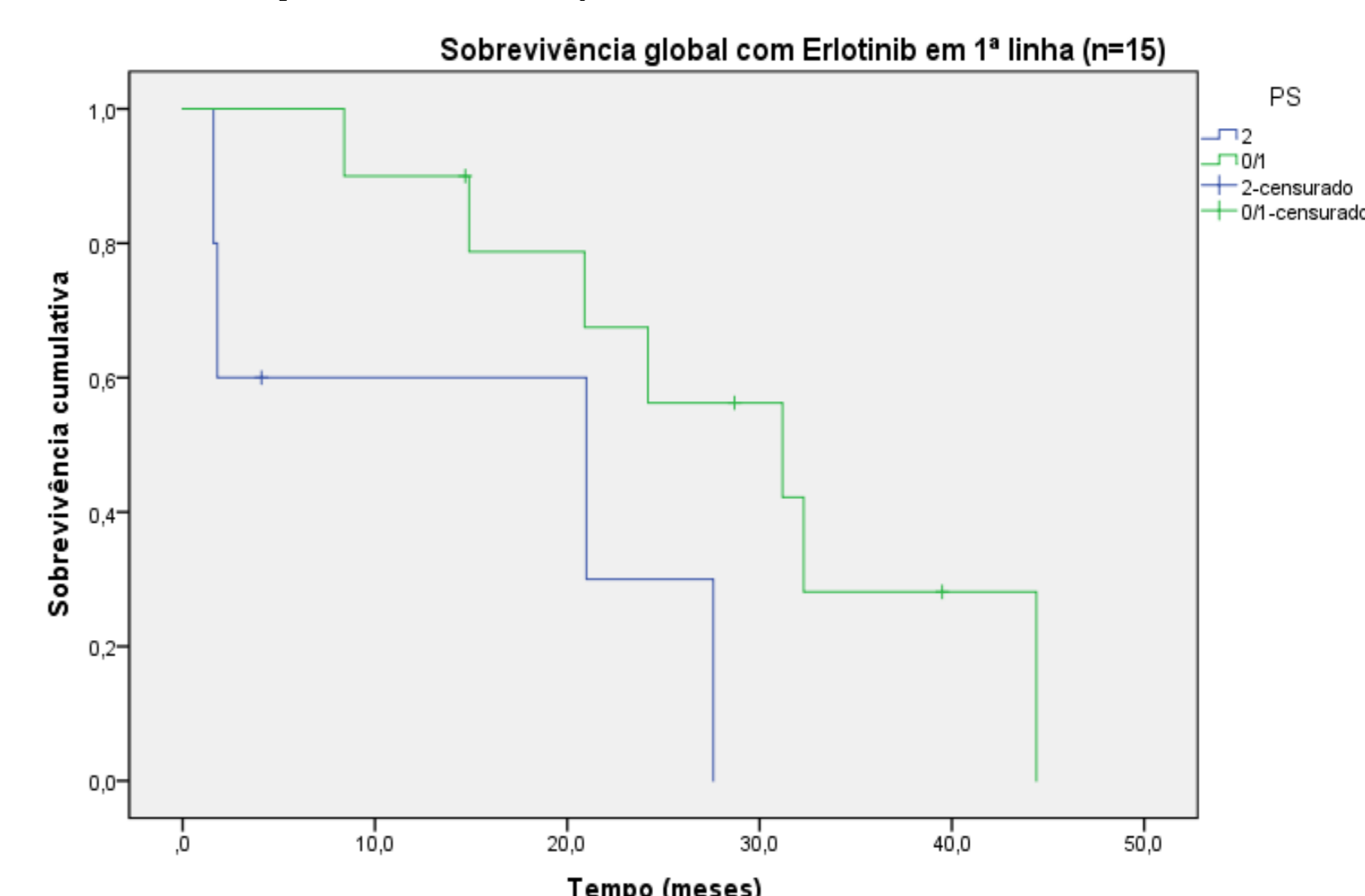
Graph 1: OS of TKI in first line vs other lines.



Median OS Erlotinib first-line in HBA (n=14) → 21,3 months

Median OS clinical trial OPTIMAL Erlotinib first line → 22,8 months

Graph 2: OS of patients treated with Erlotinib first-line



Median OS PS 0/1 → 31,2 months
 Median OS PS 2 → 21 months
 Log Rank p<0,05

Graph 3: Impact of ECOG-PS on median survival of first line treated patients with Erlotinib

CONCLUSIONS

There is a major difference in the OS of TKIs used in 1st versus 2nd and further lines, as expected since these patients present a higher ECOG PS than the 1st-line group. This study shows that the real world data, even with small samples in single center studies, can be similar to clinical trials data, as our OS with Erlotinib is nearly identical to the one reported in OPTIMAL study.

Health outcome analysis is also a process which can be easily implemented in a single center, at a low cost and that can give strong data to support the decision of the therapeutic commission and help the clinician with the choice of drugs. In the future it will be important to measure quality of life associated with these drugs.

