

Long-term response to Crizotinib in a 17-year-old boy with naive alk-positive Non-Small Cell Lung Cancer

giacomina megaro¹, Evelina Miele², Gian Paolo Spinelli³, Iside Alessi⁴, Giada Del Baldo⁴, Raffaele Cozza⁴, Ida Russo², Maria Debora De Pasquale⁴, Maria Giuseppina Cefalo⁴, Paolo Toma⁵, Valentina Di Ruscio⁶, Maria Antonietta De Ioris¹, and Angela Mastronuzzi⁴

¹Ospedale Pediatrico Bambino Gesù

²Ospedale Pediatrico Bambino Gesù

³UOC Oncologia Universitaria, ASL Latina (distretto Aprilia), Sapienza University of Rome

⁴Bambino Gesù Pediatric Hospital

⁵Bambino Gesù Children's Research Hospitals

⁶Bambino Gesù Pediatric Hospital

November 24, 2020

Abstract

Lung cancer is the leading cause of cancer-related death. NSCLC accounts for 80-90% of cases. In younger patients, adenocarcinoma is the most frequent histotype and 3-7% expresses the rearrangement of ALK oncogene, sensitive to TKIs. Crizotinib is the first ALK inhibitor approved by FDA. We present the case of a 17-year-old male with metastatic naïve ALK-positive adenocarcinoma, treated with crizotinib. He received crizotinib and obtained a prolonged response with PFS of 33 months. Crizotinib can be extremely effective in adolescent with naïve ALK-positive NSCLC but it hardly penetrates blood-brain barrier. Resistance mechanisms will be investigated for a better management.

LONG-TERM RESPONSE TO CRIZOTINIB IN A 17-YEAR-OLD BOY WITH NAÏVE ALK-POSITIVE NON-SMALL-CELL LUNG CANCER

Megarò Giacomina^{1*}, Miele Evelina¹, Spinelli Gian Paolo², Alessi Iside¹, Del Baldo Giada¹, Cozza Raffaele¹, Russo Ida¹, De Pasquale Maria Debora¹, Cefalo Maria Giuseppina¹, Tomà Paolo³, Di Ruscio Valentina¹, De Ioris, Maria Antonietta¹, Mastronuzzi Angela¹

¹ Department of Hematology/Oncology, Cell and Gene Therapy, IRCCS Bambino Gesù Children's Hospital, Rome, Italy

² UOC Oncologia Universitaria, ASL Latina (distretto Aprilia), Sapienza University of Rome- Aprilia, Latina, Italy.

³ Department of Imaging, Bambino Gesù Children's Hospital, IRCCS, Rome, Italy.

* Corresponding author: Giacomina Megarò, Piazza di Sant'Onofrio 4, Rome, 00165, Italy, giacomina.megarò@opbg.net; Tel.: 00393884699597;

Abstract: 99 words

Main text: 1127 words

Tables: 1

Figures: 1

Keywords: lung, adenocarcinoma, ALK, adolescence, crizotinib

Abbreviation	Full term
SCLS	Small Cell Lung Cancer
NSCLC	Non-Small Cell Lung Cancer
EGFR	Epidermal Growth Factor Receptor
ALK	Anaplastic Lymphoma Kinase
TKI	Tyrosine Kinase Inhibitor
EML-4	Echinoderm Microtubule-associated Protein Like-4
FDA	Food and Drug Administration
PFS	Progression-Free Survival
CT	Computed Tomography
MRI	Magnetic Resonance Imaging
CK7+	Cytokeratine 7+
TTF1+	Transcriptional Thyroid Factor 1+
ROS1	c-Ros Oncogene 1
CTCAE	Common Terminology Criteria for Adverse Events
CNS	Central Nervous System
BBB	Blood-Brain Barrier

Hosted file

Long term response to crizotinib.pdf available at <https://authorea.com/users/378293/articles/494822-long-term-response-to-crizotinib-in-a-17-year-old-boy-with-naive-alk-positive-non-small-cell-lung-cancer>

Hosted file

table.pdf available at <https://authorea.com/users/378293/articles/494822-long-term-response-to-crizotinib-in-a-17-year-old-boy-with-naive-alk-positive-non-small-cell-lung-cancer>

Hosted file

figures.pdf available at <https://authorea.com/users/378293/articles/494822-long-term-response-to-crizotinib-in-a-17-year-old-boy-with-naive-alk-positive-non-small-cell-lung-cancer>