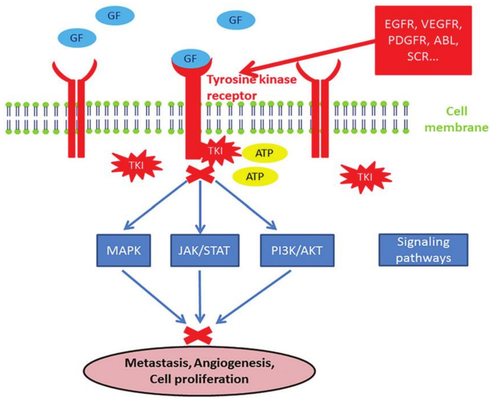
EVALUATION OF THE TREATMENT OF PHILADELPHIA CHROMOSOME POSITIVE ACUTE LYMPHOID LEUKEMIA (PH + ALL): A SYSTEMATIC REVIEW

P. GONTIJO[1], S. GONTIJO[2], H. MORAES[2] and R. OLIVEIRA[1]
1. Faculdade de Ciências Médicas de Minas Gerais, Belo Horizonte, Brazil
2. Faculdade de Minas - FAMINAS-BH, Belo Horizonte, Brazil

Introduction

Tyrosine kinase inhibitor (TKI), with or without chemotherapy, **induce high rates of hematologic and molecular responses in Philadelphia Chromosome-positive acute lymphoblastic leukemia (Ph+ ALL)**. Adverse events and resistance to therapy remain challenges. Despite advances, data on long-term effectiveness and therapeutic failures are limited.



Source: https://www.researchgate.net/figure/Schematic-representation-of-mechanism-of-action-of-tyrosine-kinase-inhibitors-TKI_fig1_337225969

Aim

This systematic review aims **to assess the efficacy and safety of different therapeutic approaches using TKI** for Ph+ ALL treatment in adults based on minimal residual disease, adverse events and therapeutic failures.

Methods

This systematic review was reported following PRISMA 2020 guidelines. Systematic searches were conducted in PUBMED, EMBASE, COCHRANE LIBRARY and SCOPUS until January 2024. Inclusion criteria focused on Ph+ ALL clinical trials with patients aged 18-65. Data extraction was performed by two reviewers. The primary outcome was minimal residual disease for BCR-ABL1. Secondary outcomes included adverse events and therapeutic failure factors.

Results

The search identified 3,380 articles. From these, 2,817 were excluded, leaving 53 for full-text screening and resulting in 16 included studies. Study included were comprised of sample sizes ranging from 6 to 266 participants. **Imatinib, Dasatinib, and ponatinib were evaluated, showing improved long-term remission and survival rates.** Common adverse events included infections, elevated transaminases, and pleural effusions. High initial white blood cell count and lack of complete hematological remission were significant predictors of therapeutic failure with TKI.

Conclusions

The study **highlights reduced-intensity chemotherapy and early TKI initiation for Ph+ ALL**. Despite advancements, adverse events and positive MRD significantly impact survival and reduce allo-HSCT referrals.

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