

Combination Therapy

Combination therapy refers to the use of **two or more therapeutic agents or modalities** simultaneously or sequentially to treat a disease, aiming to enhance efficacy, reduce resistance, and improve patient outcomes.

Objectives

- **Synergistic effect:** Achieve greater therapeutic impact than with monotherapy
- **Target multiple pathways:** Interrupt tumor growth, survival, or resistance mechanisms
- **Delay resistance:** Reduce the likelihood of tumor adaptation to single agents
- **Lower doses:** Reduce toxicity by using lower doses of each component

Types of Combination Therapy

- **Drug + Drug:**
 - EGFR inhibitor + Chemotherapy (e.g., Gefitinib + Cisplatin)
 - Immunotherapy + Antiangiogenic agent (e.g., Nivolumab + Bevacizumab)
- **Drug + Radiotherapy:**
 - Radiation + EGFR inhibitor (e.g., Cetuximab + Radiotherapy in HNSCC)
- **Targeted + Immunotherapy:**
 - EGFR-TKI + PD-1/PD-L1 inhibitor (under investigation)
- **Multimodal (surgery, chemo, radio):**
 - Glioblastoma: Surgical resection + Radiotherapy + Temozolomide

Clinical Applications

- **Oncology:**
 - Lung cancer, breast cancer, glioblastoma, colorectal cancer
- **Infectious diseases:**
 - HIV, tuberculosis, malaria
- **Chronic diseases:**
 - Hypertension, diabetes

Considerations

- **Pharmacokinetic and pharmacodynamic interactions**
- **Increased risk of toxicity**
- **Sequential vs. simultaneous administration**
- **Cost-effectiveness and patient compliance**

Example: Combination in EGFR+ NSCLC

- First-line: [EGFR-TKI](#) (e.g., Erlotinib)
- Resistance phase: Add **anti-MET** agent or **immune checkpoint inhibitor**
- Investigational: EGFR-TKI + **anti-VEGF** or **ALK inhibitor** in co-mutated tumors

Related Topics

- [Monotherapy](#)
- [Drug Synergy](#)
- [EGFR Inhibitors](#)
- [Immunotherapy](#)
- [Adverse Effects and Toxicity](#)

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=combination_therapy

Last update: **2025/05/15 07:17**

