Cetuximab and Panitumumab

Cetuximab and panitumumab are monoclonal antibodies against the epidermal growth factor receptor (EGFR) on neoplastic cells. These drugs are indicated for colorectal cancer, head/neck cancers, and Menetrier disease. Side effects include elevated LFTs, rash, diarrhea, hypokalemia, and hypomagnesemia.



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Mechanism

Monoclonal Antibodies Against EGFR

Monocle-wearing Ant-tie-body eating Egg-fried-chains

Cetuximab and panitumumab are monoclonal antibodies (mAbs) that target the epidermal growth factor receptor (EGFR) on cancer cells. By binding to this receptor, cetuximab and panitumumab inhibit cell growth.

Indications

Colorectal Cancer

Colorectal Tumor-guys

Cetuximab and panitumumab are indicated for stage IV (metastatic) colorectal cancer (CRC). EGFR positivity is seen in 75% of CRCs. By inhibiting EGFR, colon cancer growth can be reduced. KRAS wild type colorectal tumors are especially responsive to EGFR inhibitors.

Head and Neck Cancer

Head and Neck Tumor-guy

EGFR overexpression is found in 90% of squamous cell carcinomas of the head and neck (HNSCC). Cetuximab is used as initial therapy of locally advanced HNSCC in combination with radiation therapy or platinum-based therapy plus 5-fluorouracil. It can be used as monotherapy for recurrent or metastatic HNSCC that has progressed following platinum-based chemotherapy.

Ménétrier Disease

Man-in-tears

Patients with Ménétrier disease are thought to have EGFR overexpression. Anti-EGFR agents like cetuximab have shown effectiveness in treating this disease.

Side Effects

Elevated LFTs

Up-arrow Liver-enzymes

Elevation of liver enzymes can occur while ungergoing cetuximab or panitumumab therapy. This is usually transient, mild and asymptomatic. However, if the elevation exceeds more than 5 times the upper limit of normal, monitoring and discontinuation should be considered until levels return to normal or near-normal levels. Liver function tests should be performed monthly if they are found to be elevated.

Rash

Dermatologist examining Rash

Skin rash is reported in 80–95% of patients treated with cetuximab or panitumumab monotherapy. Papulopustular skin rash is the most common and is dose-dependent in severity.

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Diarrhea

Toilet

Diarrhea is another most common side effect found in patients using cetuximab or panitumumab. This is thought to be correlated with Notch signaling pathway inhibition which transforms proliferative undifferentiated intestinal crypt cells into secretory goblet cells.

Hypokalemia

Hippo-banana

These drugs may also cause significant hypokalemia. The mechanism is not completely understood but renal tubular dysfunction is thought to be the cause.

Hypomagnesemia

Hippo-magnesium-magazine

Hypomagnesemia is another possible side effect. Electrolytes should monitored for 8 weeks after completion of therapy.

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