Pretherapeutic patient specific drug selection in gastric cancer using microtumors


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Chemotherapeutic recommendations according to the guidelines (S3 and others)

Perioperative treatment

Monotherapy: none

Combination therapy:
- 5-Fluorouracil + Cisplatin (SFU + Cis)
- 5-Fluorouracil + Irinotecan + Docetaxel (SFU + Iri + Doc)
- 5-Fluorouracil + Oxaliplatin + Cisplatin (SFU + Ox + Cis)
- 5-Fluorouracil + Oxaliplatin + Epirubicin (SFU + Ox + Epi)

Molecular / targeted therapy: none

Palliative treatment

Monotherapy:
- 5-Fluorouracil (elderly patients only)

Combination therapy:
- 5-Fluorouracil + Cisplatin + Docetaxel (SFU + Cis + Doc)
- 5-Fluorouracil + Oxaliplatin + Docetaxel (SFU + Ox + Doc)
- 5-Fluorouracil + Irinotecan + Docetaxel (SFU + Iri + Doc)
- 5-Fluorouracil + Oxaliplatin + Epirubicin (SFU + Ox + Epi)
- 5-Fluorouracil + Irinotecan + Epirubicin (SFU + Iri + Epi)

Molecular / targeted therapy:
- 5-Fluorouracil + Cisplatin + Trastuzumab (SFU+Cis+Tras) (Her2/neu IHC Score 3; Her2/neu IHC Score 2 and FISH positive)

Second line treatment

Monotherapy:
- Irinotecan

Combination therapy:
- Irinotecan + Mitomycin C

Molecular / targeted therapy:

Palliative treatment options

Rationale
Which is the most effective treatment option for the individual patient?

Process / Methods
- Required material: 4-6 tumor biopsies
- Preparation of microtumors in vitro for 48 hours
- In vitro chemotherapeutic treatment for 48 hours
- ATP assay to determine therapeutic efficacy
- Availability of treatment findings within 7 days

Conclusions
- Treatment options of the palliative setting are also effective in the perioperative situation
- Targeted therapies should be considered in the perioperative treatment
- In addition to Trastuzumab other molecular drugs (e.g. Cetuximab) are effective in individual tumor samples
- Opposite to guideline statements, Cisplatin-based therapies are more effective compared to Oxaliplatin- as well as irinotecan-based therapies
- In vitro drug testing of the original patient tumor facilitates the treatment selection

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