Interventional tumor therapy: what is available and how does it work?

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Disclosure

Speaker name: Michael Moche

I have the following potential conflicts of interest to report:

- [x] Consulting Siemens and BTG
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

- [ ] I do not have any potential conflict of interest
Approach & Organs

percutaneous

transarterial
Percutaneous ablation

Complete, “A0“-Treatment

Safety margin > 1cm

Metastasis

1 week post RFA
Transarterial treatment

- Double blood supply of liver
- Tumor perfusion > 80% arterial
- TACE: up to 100 x systemic concentration
- SIRT: Tumor dose up to 100-1000Gy
Transarterial treatment

(Super)selective

Lobal

TACE

bilocbar sequential

21%

SIRT

lobar/segmental

77%
Oncological Interventions

Technique of approach and tumor damage

- Electroporation (ECT, IRE)
- Brachytherapy (BT)
- Selective Internal Radiotherapy (SIRT)
- Laser induced interstitial thermotherapy (LITT)
- High Intensity Focused Ultrasound (HIFU)
- Radiofrequency Ablation (RFA)
- Microwave Ablation (MWA)
- Cryoablation (cryo)
- Transarterial Chemoembolization (TACE)
- Chemosaturation
- Non-thermal
- Thermal
Aim of Interventional Oncology

Curation
- LTX
- Resektion
- Ablation
- TACE
- SIRT

Local control / Bridging
- Liver
- Lung
- Kidney
- Prostate

Percutaneous
- Liver
- Bone
- Soft tissue
- Pancreas

Local control / Palliation
Transarterial & Percutaneous palliative & „neoadjuvant“

RFA after cTACE
278 HCC Patienten (VISUM stage 1) behandelt mit Leberresektion (LR) (n = 52); TACE und RFA (n = 44); TACE (n = 107); Tamoxifen (n = 21)

S3-guideline HCC

HCC > 3 cm: RFA after pre-treatment with TACE
2016 Guidelines: mCRC

ESMO consensus guidelines for the management of patients with metastatic colorectal cancer

Best systemic treatment in terms of induction of response

Evaluation at 6–8 weeks

At time of "best response" also evaluate use of best treatment strategies available (patient-/expertise-dependent)

"Toolbox" instruments for local ablative treatment (surgery, invasive local ablation [RFA, microwave], precision radiotherapy [SBRT], embolisation techniques [any particles/beads, SIRT])

Consider (recommended) re-uptake of systemic treatment, but limit treatment duration to a total of 6 months

Toolbox of ablative treatments

Local treatments

- Thermal devices
  - Radiofrequency ablation or cryoablation
  - Microwave ablation

- Non-thermal devices
  - Brachytherapy electroporation
  - External Body Radiotherapy with high-precision RT

Locoregional treatments

- Embolic devices
  - Radioembolisation SIRT
  - Chemoembolisation TACE/Beads

- Local chemotherapy

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2016 Guidelines: Cholangiocarcinoma

**Biliary tract cancer**

- Early stage
- Locally-advanced
- Metastatic

**Surgery**

- Adjuvant chemo-radiotherapy
- Surveillance

**Systemic chemotherapy**

- First-line combination chemotherapy (PS0-1)
- First-line gemcitabine monotherapy (PS2)
- Second-line chemotherapy: No standard
- Targeted therapy: No standard

**Loco-regional therapy**

- Radiotherapy
- 90Y-radioembolisation (iCCA)

Via MDT Clinical trials where possible
2018 Guidelines: HCC

BCLC O-A
- Resection* (LTX, [III, A])
  - SBRT Brachytherapy SIRT (III, C)
- Ablation* (III, A)
  - TACE (I, B)

BCLC B
- LTX Resection (III, A)
- TACE (I, A)
  - TACE failure/ refractoriness
    - SIRT (III, C)

BCLC C
- Sorafenib* Lenvatinib* (I, A)
- Nivolumab* (I, B)
  - Regorafenib* Cabozantinib* Ramucirumab* (I, A)
  - Nivolumab* Pembrolizumab* (III, B)
Take home

- Comprehensive „Toolbox“ of methods available
- Individual treatment plan
- Curative, palliative & “neoadjuvant”
- Recommendation in actual guidelines
- Interdisciplinary Oncology: interventional, surgical and systemic

Thank you!
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