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The efficacy of locoregional therapy is well established for most tumors and is related to the fact that malignant tumors are mainly vascularized by their arterial supply. Hepatic arterial infusion (HAI) has been an appealing investigational method over the last three decades for patients with tumors confined to one organ in whom it has reproducibly yielded a significant higher concentration of drugs, with consequently higher response rates than systemic therapy.

The progress made recently in chemotherapy agents, in microspheres able to embolize more efficiently the microvasculature of tumors as well as to load efficient drugs able to diffuse within the organ (drug-eluting beads – DEB) or to be loaded with radioactive agents to serve as a source of internal radiation (radioembolization), has reactivated the interest for regional therapy in the recent years. In addition, the spectrum of intraarterial antitumor substances became much broader which are mostly able to combine with the new degradable starch microspheres (DSM). Finally the tremendous technical progress made by interventional radiologists allows now this therapy to be performed mini invasively.

Along with this higher efficacy, the role of these therapies is changing in between the two standards of therapy consisting on surgical resection of the tumor in one side and systemic therapy on the other side. Surgery is still the only treatment able to completely remove the tumor with safe margins offering the best chances of long-term survival and even cure. By this way, locoregional therapy is still reserved to non-resectable patients or patients unfit for surgery.

On the other hand, especially when dealing with metastatic disease, the role of locoregional therapies is reserved to tumors located in one organ, after a complete workup to look for another metastatic site that would preclude their use. In this latter case, systemic chemotherapy is the preferred approach.

These therapies benefit now from lessons learned from the past. The history of intraarterial chemotherapy for liver metastases is interesting on this regard, showing that in the past, patients were for long very well controlled in their hepatic disease but developed extrahepatic metastases that finally determined their fatal outcome. The combination of intraarterial infusion with systemic administration of chemotherapy is able today to prevent in some extent this unfavorable outcome. Another example of the evolution of the ideas is the present recognition of radiofrequency as a potentially curative treatment of HCC owing to the

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effective ablation of liver tumors of up to 25 mm in diameter, achieving in this case almost equivalent results as surgery.

But, in addition to the competitive efficacy of the other therapies, locoregional treatments are also faced with their higher complexity, leading sometimes to deny their recognized efficacy for a more simple approach by systemic chemotherapy. The expertise of interventional radiologists and surgeons and the open mind of medical oncologists to accept these approaches is the prerequisite for these locoregional therapies to play all their important roles. Also critical is their cost-effectiveness to be compared with the conventional treatments.

In this book, an update of the role of locoregional therapies is extensively made by experts in liver, lung, and head and neck tumors. No doubt that this will allow to precise their increasing role in the larger and larger armamentarium of available treatments for malignant tumors.