Head and Neck Chemotherapy

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Introduction

Intra-arterial chemotherapy for cancer of the head and neck is a well-established but evolving technique for the treatment of advanced tumors in that region. It is intended for patients for whom traditional therapy has failed. As the procedure evolves, it may gain wider application. It is a method that requires a team approach. The basic members of the team are a neuroendovascular physician and an oncologist. Additional members of the team ideally include a head and neck surgeon and a radiation oncologist. Current techniques involve selective catheterizations of the branches of the ECA. Approaches in the literature include both a traditional femoral approach and a surgical approach for long-term treatment with a cut-down on the superficial temporal artery and implantation of a pump.

Indications

The procedure shall be deemed appropriate and indicated in the following situations: 1) standard therapy regimens have failed, and the intra-arterial chemotherapy is being performed as in an effort to control tumor growth; 2) intra-arterial chemotherapy is being performed as a standard part of a treatment regimen, as determined by the patient's treating physicians; and 3) the patient is enrolled in an institutional review board-approved study of intra-arterial chemotherapy as an alternative or adjunct to standard treatment of the tumor.

Threshold: When intra-arterial chemotherapy is performed for other indications, a review should be prompted.

Efficacy

The response to treatment varies with the initial grade and type of tumor. Initial response rates have been reported to be as high as 100%. Complete response is unusual. Efficacy of the therapy should be judged in comparison with standard treatment as it evolves over time.

Safety

The historical data indicate a high rate of safety for the procedure. Complications should be categorized into three groups: those associated with angiography, with systemic toxicity, and with local toxicity.

Complications Associated with Angiography

The potential complications associated with and thresholds for neuroangiography are outlined elsewhere. Unique complications associated with long-term catheterization using the slow infusion method include thrombophlebitis and catheter infection. Thresholds for these latter complications are outside the scope of this document.

Systemic Toxicity

Systemic toxicity of the chemotherapy agent can be rated according to the standard criteria outlined by the Eastern Cooperative Oncology Group. Systemic toxicity should not exceed that of IV therapy with the same agent.

Local Toxicity

Local toxicity includes hemicranial alopecia, mucositis, dermatitis, skin necrosis, and peripheral and cranial nerve palsies (see table below).

Indicator	Threshold (%)
Severe mucositis	<17
Dermatitis	<5
Hemialopecia	<45
Skin necrosis	<5
Peripheral neuropathy	<1
Cranial neuropathy	<1

Threshold: If thresholds for complications or toxicity are exceeded, a review should be conducted.

Bibliography

Lee YY, Wallace S, Dimery I, Goepfert H. **Intraarterial chemotherapy of head and neck tumors.** *AJNR Am J Neuroradiol* 1986; 7:343–348

Moses BL, Chan DW, Hruban RH, Forastiere A, Richtsmeier WJ. **Comparison of intra-arterial and intravenous infusion of cisplatin for head and neck squamous cell carcinoma in a modified rat model.** *Arch Otolaryngol Head Neck Surg* 1993;119: 612–617

Los G, Blommaert FA, Barton R, et al. **Selective intra-arterial infusion of high-dose cisplatin in patients with advanced head and neck cancer results in high tumor platinum concentrations and cisplatin-DNA adduct formation.** *Cancer Chemother Pharmacol* 1995;37:150–154

Gore ME, Riches P, MacLennan K, et al. **Phase I study of intra-arterial interleukin-2 in squamous cell carcinoma of the head and neck.** *Br J Cancer* 1992;66:405–407

Robbins KT, Storniolo AM, Kerber C, et al. **Phase I study of highly selective supradose cisplatin infusions for advanced head and neck cancer.** *J Clin Oncol* 1994;12:2113–2120

Cheung DK, Regan J, Savin M, Gibberman V, Woessner W. **A pilot study of intraarterial chemotherapy with cisplatin in locally advanced head and neck cancers.** *Cancer* 1988;61:903–908

Baker SR, Wheeler RH, Forastiere AA, Medvec BN. **Recent developments in the management of head and neck cancer with intra-arterial chemotherapy.** In: Chretien OB, Johns ME, Shedd DP, Strong EW, Ward PH, eds. *Head and Neck Cancer*. vol 1. Philadelphia: B.C. Decker, Inc.; 1985:461

Oken MM, Creech RH, Tormey DC, et al. **Toxicity and response criteria of the Eastern Cooperative Oncology Group.** *Am J Clin Oncol* 1982;5:649–655

Shimizu T, Sakakura Y, Hattori T, Yamaguchi N, Kubo M, Sakakura K. **Superselective intraarterial chemotherapy in combination with irradiation: preliminary report.** *Am J Otaryngol* 1990;11: 131–136

Robbins KT, Storniolo AM, Kerber C, Seagren S, Berson A, Howell SB. **Rapid superselective high-dose cisplatin infusion for advanced head and neck malignancies.** *Head Neck* 1992;14:364–371