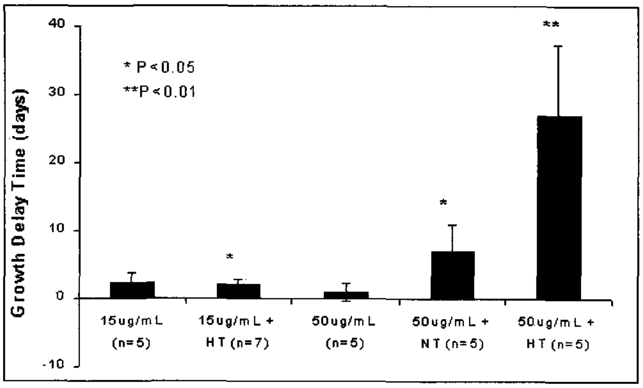
2 of 5 animals showing a complete response out to 60 days). There was no significant change in tumor LPAM concentration with addition of heat. Average proliferation index following ILP with saline, saline + HT, LPAM, or LPAM + HT was 40%, 28%, 27%, and 16% respectively. CONCLUSIONS: Administration of LPAM with increasing amounts of localized heat yielded increasing growth delay and decreased proliferative index. This demonstrates that the application of hyperthermia, rather than the prevention of hypothermia, is the cause for enhanced therapeutic effect in HILP. The interaction between HT and melphalan was synergistic. This interaction could not be explained by increased uptake of drug with the addition of heat. These findings underscore the importance of the use of HT in regional chemotherapy.



98

A Prospective Evaluation Of Isolated Limb Perfusion With Doxorubicin In Patients With Unresectable Extremity Sarcomas

B.W. Feig,* M.I. Ross, K.K. Hunt, J. Cormier, J. Griffin, P. Pisters, R. Pollock, R. Benjamin. *surgical oncology - box 444, mdanderson cancer center, houston, TX.*

Introduction: The efficacy of isolated limb perfusion in patients with unresectable extremity sarcomas has remained controversial. Doxorubicin has been the most active agent against sarcomas when administered systemically; however, its use in ILP has been hindered by concerns over potential local toxicity. Recently, several studies have shown doxorubicin to be safe and efficacious when used in this manner. We, therefore, undertook a prospective study to evaluate the safety and efficacy of doxorubicin in patients with unresectable extremity sarcomas. Methods: Fourteen patients were entered into an IRB approved protocol. Eligibility required patients to have no treatment option available except amputation. Perfusion was performed under normothermic conditions for 60 minutes using a standard, previously described technique. The starting dose of doxorubicin was 1.4 mg/kg body weight for lower extremity perfusion and 0.7 mg/kg body weight for upper extremity perfusions for the first 3 patients. Toxicity resulted in a dose reduction of 25% for the second 3 patients and an additional 25% reduction for the last 6 patients. Results: Twelve patients were able to be successfully perfused. With a median follow-up of 12 months, there are 3 patients (25%) that are alive with their extremity intact, two with disease present. There were no partial or complete responses in any of the patients. Six patients (50%) required amputation due to persistent tumor. Six patients (50%) developed significant myonecrosis with CPK levels ranging from 13,000 to 54,000 units/dl. The myonecrosis appeared to be unrelated to the dose of the doxorubicin (33% at the initial dose, 67% at the second dose, and 50% at the final dose). Conclusions: Despite the activity seen when doxorubicin is used systemically for patients with soft tissue sarcoma, there appears to be minimal activity when delivered via isolated limb perfusion. Additionally, significant myonecrosis was observed which appears to be independent of the dose of doxorubicin. Based on this data, there appears to be no role for isolated limb perfusion with doxorubicin in patients with soft tissue sarcomas.

99

A Modified Eilber Protocol Provides Maximum Local Control and Minimum Major Morbidity in Soft Tissue Sarcoma

L.A. Mack,[1]* P.J. Crowe,[2] W.J. Temple,[1] N.S. Schachar,[3] J.L. Yang,[2] D.G. Morris,[1] E. Kurien,[1] R.L. Lindsay,[3] E. Magi,[3] W.G. DeHaas.[3] *1. Surgical Oncology, Tom Baker Cancer Centre/ University of Calgary, Calgary, AB, Canada; 2. Prince of Wales Hospital/ University of New South Wales, Randwick, NSW, Australia; 3. Foothills Hospital/ University of Calgary, Calgary, AB, Canada.*

Introduction: A local recurrence rate of 15-25% for soft tissue sarcomas (STS) is still unacceptable. Our objective was to determine if a refined neoadjuvant radiation (RT) and chemotherapy (CT) protocol (modified Eilber protocol) improves local control while minimizing major morbidity. **Methods:** All patients (pts) presenting with STS deep to the fascia of the extremity/trunk during 1984-1996 were treated with 3 days of intravenous (IV) or intra-arterial (IA) Adriamycin (30mg/day) followed immediately by radiotherapy (RT) (300cGy/day for 10 days). Wide surgical excision with limb preservation was performed 4-8 weeks after completion of RT. Treatment complications, margins, local recurrence (LR), and survival (log rank; Kaplan-Meier) were prospectively documented for a minimum of 5 years or until death. Prognostic factors were assessed via multivariate analysis (MVA). **Results:** 75 patients, including 10 recurrent STS, were analyzed. 51% of cases were of the proximal lower limb and 23% of the distal lower limb. Mean age was 50 (13-84), 66% had tumors > 5 cm and 71% were of grade II or grade III. Histologies included liposarcoma (22.7%), MFH (21.3%), leiyomyosarcoma (16%), synovial cell sarcoma (16%), and other (24%). In 8 patients, negative margins were not obtained. Of these 8, 4 had amputation (95% limb salvage), 1 had re-resection and is free of disease, one died without evidence of disease, and two died with local and distant disease. Of the 67 patients with negative margins, a local control rate of 94% and an overall survival of 63% were achieved. Although margin ($p=0.001$) and stage ($p=0.035$) were predictive of LR, these were not significant on MVA. Risk factors for death included TNM stage (Hazard ratio(HR) 1.54;$p=0.001$) and tumor grade (HR 1.4;$p=0.02$). 8 pts (10.6%) developed minor wound complications and 3 pts (4%) required re-operation for tissue loss. 4 pts had minor local complications directly attributable to IA CT. There were no in-hospital or thirty-day mortalities. **Conclusions:** This modified Eilber protocol is ideal to maximize local control and minimize complications for STS.

100

Long-term Management of Patients After Potentially Curative Treatment of Extremity Soft-tissue Sarcoma

F.E. Johnson,[1]* K.S. Virgo,[1] A.L. Beitler,[3] J.F. Gibbs,[3] K. Sakata,[2] S. Sarkar,[4] W.G. Kraybill,[3] R.A. Audisio.[4] *1. Surgery, Saint Louis University, St. Louis, MO; 2. Veterans Affairs Medical Center, St. Louis, MO; 3. Roswell Park Cancer Institute, Buffalo, NY; 4. University of Liverpool, Liverpool, United Kingdom.*

Introduction: The optimal method of post-treatment follow-up of extremity soft-tissue sarcoma (STS) patients is unknown. We attempted to quantify the current self-reported practice of follow-up among Society of Surgical Oncology (SSO) members. Methods: A custom-designed survey was sent to all 1592 members of the SSO; 716 responded. There were 318 respondents who performed surgery for STS and also followed their patients afterwards. These 318 were considered evaluable. Repeated-measures analysis of variance was used to analyze follow-up intensity by tumor size, tumor grade, surgeon age, years after primary treatment, and geographic location of the surgeon. Results: 85/318 evaluable respondents (28%) practiced outside the USA; 201 (63%) had an academic appointment; 295 (93%) were general surgeons and 15 (5%) were orthopedic surgeons. 291 (92%) had completed a fellowship; 256/318 (81%) had completed a fellowship in surgical oncology. Surveillance relied most heavily on office visit (mean frequency ± SD = 3.8 ± 1.0 visits in year 1 after treatment for a high grade STS > 5 cm in diameter, decreasing to 1.1 ± 0.9 visits in year 10), but simple blood tests, chest x-rays, and various extremity imaging modalities were also used often. Intensity of follow-up also differed significantly by tumor size and tumor grade. Few significant differences were related to the age and geographic location of the surgeon ($p<0.05$), and the magnitude of these effects were all small. There was a consistent, significant, and large decrease in follow-up intensity with increasing years post-treatment. Conclusions: There is considerable variation in the intensity of follow-up after primary therapy for extremity STS. None of the factors evaluated could