Local Treatment of Kaposi's Sarcoma in AIDS Patients

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Kaposi's sarcoma (KS) is a richly vascular systemic neoplasm of endothelial origin which can be associated with AIDS. Cutaneous and/or mucosal lesions are painful when submitted to friction or pressure.

Folkman and Haudenschield [1] showed that the capillary endothelial cell expresses the information necessary to build a capillary tube provided that sufficient stimulation of the cell by neighboring angiogenic factors is produced. Angiogenic factors may be critical in the onset of KS lesions as well [2]. HIV aggression of certain key cells (macrophages, lymphocytes) may induce angiogenic factor release.

Although heparin is bound to endothelial cells and attracts growth factors to promote angiogenic-dependent cell proliferation [3], in the presence of corticosteroids, it acts to inhibit angiogenesis. Dimethyl sulfoxide (DMSO) has the ability to cross biological membranes carrying with it substances unable to penetrate the membranes spontaneously [4]. Moreover, DMSO has been shown to reduce pain when applied to the skin locally [4] and may inhibit HIV production in vitro by altering viral assembly [5]. We tested the potential ability of DMSO to transport low molecular weight heparin and corticosteroids directly into KS lesions.

Eight male AIDS patients (stage 4-D, CDC classification), 23-43 years old, were treated after full consent had been obtained. KS lesions measured 4-12 mm in diameter. During the 5- to 10-month trial period, only azidothymidine (AZT), antibiotics or anti-parasitics were given as medically required. The preparation consisted of: 1 ml of 90% DMSO, 1 ml of 23 mg of hydrocortisone acetate in aqueous solution (in a water base of benzyl alcohol, carboxymethylcellulose sodium, sodium chloride, polysorbate 80; Roussel Labs, Paris, France) and 0.3 ml of 7.300 AXa.IC units of fraxiparin (Fraxiparin, Laboratoires Choay, Paris, France).

One unit of antifactor Xa.IC is the amount of glycosaminoglycan that produces the same inhibiting effect as 1 IU of heparin. Each dose is increased 6 fold for daily application. Patients were instructed to liberally apply the preparation on painful skin lesions 2-3 times a day using a sterile gauze pad. No rebound or side effects were noted during or after the treatment period. The following positive results were obtained after 8 weeks of treatment: all patients reported that the pain disappeared and the size of the lesions remained either static or regressed to a smaller size than prior to treatment. Normally, KS lesions will increase in size without treatment.

Measurement of lesion sizes prior to and during treat-

ment confirmed that growth arrest or actual lesion shrinkage occurred. Two weeks after treatment had been discontinued, patients reported return of pain and lesion size increase at a rate slower or the same as prior to treatment.

We conclude that topical use of DMSO, heparin and corticosteroids is beneficial in blocking KS-associated pain and slowing or arresting growth of these lesions in 8 male AIDS patients.

References

Folkman J. Haudenschild CC: Angiogenesis in vitro. *Nature* 1980;288:551-556. Ryan TJ: Angiogenesis and Kaposi's sarcoma. *Lymphology* 1988;21:61-65. KJagsbrun M. Smith S. Azizkhan J: Chondro-cytes contain a chromatin-associated protein that is a growth factor. *J Cell Biol* 1981 ;91: 203 a.

Wood DC, Wood J: Pharmacologic and biochemical considerations of dimethyl sulfoxide. *Ann NY Acad Sci* 1975;243:7-19' Viza D, Aranda-Anzaldo A. Zompetti C, Vich J: Dimethyl sulfoxide inhibits human immunodeficiency virus production in vitro. *Intervirology* 1991;32:59-64.