Intralymphatic Injection of Immunogenic Material in Afferant Lymphatic Vessel:  
A Method of Choice  
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After thousands of intralymphatic injections of immunogenic material in dogs and mostly in humans the safety of this method was so stunning that we applied it to the treatment of allergic diseases which had resisted other modalities of allergens administration.

The legacy left to the scientific community for thought is threefold:

- A method of choice, safe, effective for treatment of allergic diseases.
- A method which should be resurrected for immunotherapy of cancer, as the vaccines can now be much more effective with adjunction of dendritic cells and even cytokines (e.g. gmcsf) to the irradiated tumor cells.
- An observation worth of attention: the protection against viral infections (possibly including HIV), by relatively safe and inexpensive administration of agents which boost the immune system in a non specific way: if intralymphatic injections of irradiated tumor cells can do it, why not other ways (cytokine, cytokine patches, etc.), however we think that the direct stimulation of lymphnodes may be unique in achieving a boost of the immune system capable of protecting against all viruses.

I. Allergic Diseases  

"Privately owned dogs with allergic disease who had failed conventional veterinary therapy were treated by the Intralymphatic administration of allergen vaccines in an attempt to determine the efficacy of this route of administration in desensitizing the dogs to environmental allergens and thus ameliorating their disease. Intralymphatic infusion of allergen suspensions resulted in primarily a plasma cell proliferation which was first histologically observable 48 hours after injection, peaked on day 5, and subsided after day 20. Contralateral control nodes showed no reaction. In contrast to allergen vaccines, infusion of xenogeneic cellular vaccines was observed to induce primarily a lymphoblastic reaction. Of the 14 dogs which have undergone Intralymphatic immunotherapy (ILI) for allergic disease, 8 (57%) went into complete remission for periods of 2 months to 2 years. Relapse of disease in these responder dogs was successfully treated by renewal of ILI. Four dogs (28%) had only partial remissions in which their lesions improved without complete clearance. Two of the 14 dogs (14%) were non-responsive to ILI. Thus, this form of therapy has been shown to be clinically effective in treating canine allergic disease after conventional therapy had failed in the majority of dog studies. It is hypothesized that the intralymphatic route of vaccine infusion can be more effective than intradermal injection in inducing blocking antibody production, thus decreasing allergic disease."

"Warning: direct transcutaneous lymphnode injections, perforating its capsule, is Ok for weakly immunogenicity material. But could have potentially harmful consequences and is not recommended for treatment of allergic diseases"

Photos of canine before and after Intralymphatic Immunotherapy (ILI) injections (Fig. 1 and 2):
Fig. 1: Loss of hair before intralymphatic immunotherapy

Fig. 2: Re-growth of hair after intralymphatic immunotherapy

Fig. 3: Plasma Cell Reaction of injected lymphnode with allergens
II. Cancer


The fate and consequences of intralymphatic injections of cells was investigated in dogs. The distribution of intact radiolabeled cells was determined in vivo by whole body gamma scanning. Comparison of distributions resulting from intralymphatic, subcutaneous, intradermal and intravenous routes of administration showed that the distribution and duration of radiolabel in various organs varied with the route of administration. Following intralymphatic injection, radiolabel was concentrated in first echelon lymph nodes draining the site of injection and was retained in these nodes for over 4 weeks. Histologic studies showed intense cortical and paracortical lymphopoiesis to be associated with the retention of intralymphatically injected tumor cells by first echelon lymph nodes. Serial histologic examination of lymph nodes from intralymphatically injected inbred beagles revealed that the consequent lymphopoiesis persisted for 5 weeks. In vitro evaluation of peripheral blood and lymph node lymphocyte cytotoxicity of the injected cells indicated that retention and nodal lymphopoiesis was associated with the development of direct lymphocyte cytotoxicity.

The effects of concomitant tumor burden, cytotoxic drugs and ionizing radiation were also investigated and suggest that the therapeutic potential for use of the intralymphatic routes has not yet been realized.

Twenty-one patients with advanced malignancies who had exhausted or refused conventional modalities of treatment were entered in a Phase I toxicology trial of active specific intralymphatic immunotherapy (ASILI). The patients were immunized with 1 X 10^7 to 1.2 X 10^8 viable autochthonous or allogeneic irradiated tumor cells intralymphatically each month and received no other antineoplastic treatment. To date, 274 intralymphatic injections have been performed and except for one case of bacterial lymphangitis, no adverse side effects have been observed. ASILI did not significantly alter peripheral blood lymphocyte count, absolute E-rosette forming cell levels, or EA-rosette forming cell levels. PHA reactivity of peripheral blood lymphocytes increased slightly in all but one patient tested. Seven out of nine patients who had not had delayed hypersensitivity to recall antigens developed positive reactions following ASILI. Sixteen out of twenty patients tested also developed reactivity to their immunizing cells after treatment. Objective regression (greater than 50% reduction of tumor mass) was observed in five out of nineteen evaluable patients. Six patients showed stabilization of tumor growth and eight patients continued to progress under treatment.

Fig. 6: Initial lymphatic injection of tumor cell vaccine.

Fig. 7: Complete regression of tumor with return of eye in place (Squamous cell ca left maxillary orbit)
III. Protection against Viral Infections


Patients with advanced malignancies who received intralymphatic injections of irradiated tumor cells suspensions ("vaccines") were unexpectedly found to be resistant to common viral diseases; 17 patients with a documented past history of viral infections who have been observed for 48 to 148 months (median 108 months), were analyzed. The resistance to viruses was found to correlate closely with the presence, in the serum, of certain cytokines. Specifically, the interleukins, -2, -6, -8 and interferon-gamma, at low but sustained levels appeared to be possibly responsible for the nonspecific protection against viral infections obtained by intralymphatic injections of cellular material. These findings suggest that viral infections in normal or immunosuppressed individuals at particular risk might be prevented by treatments aimed at attaining very modest levels of certain cytokines.

Full article

Scholarly contributions, articles and other references from the author:


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