

BARTH-1: A realistic appraisal of Boron Neutron Capture Therapy as a cancer treatment modality

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As elegant as is the concept upon which Boron Neutron Capture Therapy (BNCT) is based, unfortunately it has not gained widespread acceptance by the physicians who are treating cancer patients on a daily basis. The question is why? Very simply put, the clinical results obtained in treating patients with high grade gliomas and recurrent tumors of the head and neck origin have not been convincing enough to produce more interest in BNCT as a cancer treatment modality. There are a variety of reasons for this, one of the most important of which has been its dependency on nuclear reactors as neutron sources. With the advent of accelerator based neutron sources (ABNS), this hopefully will be addressed. If the results obtained from ongoing and soon to be initiated clinical trials can at least demonstrate equivalency to those obtained with nuclear reactors, this should address the first problem. The second problem relates to boron delivery agents, and despite the considerable efforts of chemists and biologists over the past 50 years, there are only two drugs that have been used clinically, sodium borocaptate (BSH) and boronophenylalanine (BPA). It is widely recognized that these two drugs are less than ideal. Perhaps new and more effective boron delivery agents will finally appear on the scene, but barring that, we will address the question of what can be done now to make BNCT a more effective cancer treatment modality.