Researchers from University of Arizona, Department of Surgery discuss findings in lymphedema
10/11/2010 Clinical Trials Week

Fresh data on lymphedema are presented in the report ‘Radioprotection from radiation-induced lymphedema without tumor protection,’ "Lymphedema or tissue swelling from impaired lymph drainage commonly occurs after regional nodal dissection and/or radiation therapy for cancer control. Treatment options for this disabling and life-altering complication involve long-term labor-intensive commitments," researchers in the United States report (see also ).
"Sentinel node biopsy can forestall removal of negative regional nodes, offering some protection against lymphedema, however, most preventive measures are elusive, ineffective, or unproven. Our goal was to determine whether the radioprotectant amifostine could prevent or retard the development of lymphedema in a rodent radiation therapy-dependent model yet not offer tumor protection from the therapeutic effects of radiation therapy. We pre-treated rats after unilateral radical groin dissection with the organic thiophosphate radioprotectant amifostine or placebo prior to single dose post-operative groin radiation therapy and monitored hindlimb volumes, wound scores, and tissue lymphostasis. In addition, we determined whether amifostine protected human MCF7 breast cancer cells exposed to a range of radiation therapy doses in an in vitro clonogenic assay and an in vivo MCF7 tumor xenograft model. Our findings indicate that amifostine markedly reduced the volume of limb lymphedema and dramatically improved wound healing and tissue lymphostasis in the rodent lymphedema model. The in vivo and in vitro studies further demonstrated that amifostine offered no MCF7 tumor protection from radiation therapy," wrote S.K. Daley and colleagues, University of Arizona, Department of Surgery.

The researchers concluded: "These pre-clinical findings provide proof-of-principle to further delineate specific mechanisms underlying amifostine's beneficial effects, determine optimal amifostine-radiation therapy dosing regimens, and thereby expedite translation into clinical trials to reduce lymphedema incidence and severity in cancer patients at high lymphedema risk in whom radiation therapy is the recommended therapy."

Daley and colleagues published their study in Lymphology (Radioprotection from radiation-induced lymphedema without tumor protection. Lymphology, 2010;43(2):48-58).

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**Investigators at University of Arizona release new data on amphetamines**

10/11/2010

NewsRx.com

Research findings, 'Proximity to the US-Mexico border: a key to explaining geographic variation in US methamphetamine, cocaine and heroin purity,' are discussed in a new report. According to recent research from the United States, "Although illicit drug purity is a widely discussed health risk, research explaining its geographic variation within a country is rare. This study examines whether proximity to the US-Mexico border, the United States' primary drug import portal, is associated with geographic variation in US methamphetamine, heroin and cocaine purity."

"Distances (proximity) between the US-Mexico border and locations of methamphetamine, cocaine and heroin seizures/acquisitions (n=239,070) recorded in STRIDE (System to Retrieve Information from Drug Evidence) were calculated for the period of 1990-2004. The association of drug purity with these distances and other variables, including time and seizure/acquisition size, was examined using hierarchical multivariate linear modeling (HMLM). Coterminal United States.

Methamphetamine, cocaine and heroin purity generally decreased with distance from the US-Mexico border. Heroin purity, however, after initially declining with distance, turned upwards— a U-shaped association. During 2000-04, methamphetamine purity also had a U-shaped association with distance. For each of the three drugs, temporal changes in the purity of small acquisitions (<10 g) were typically more dynamic in areas closer to the US-Mexico border. Geographic variance in methamphetamine, cocaine and heroin purity throughout the coterminous United States was associated with US-Mexico border proximity. The U-shaped associations between border-distance and purity for heroin and methamphetamine may be due to imports of those drugs via the eastern United States and southeast Canada, respectively," wrote J.K. Cunningham and colleagues,
The researchers concluded: "That said, areas closer to the US-Mexico border generally had relatively high illicit drug purity, as well as more dynamic change in the purity of small ('retail level') drug amounts."


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