Blood Tests, Vaccination and other Research Approaches for Mesothelioma Patients

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A blood test for mesothelioma would make it easier to manage patients, ie. help make a diagnosis, help monitor whether the treatment is working or not. SMRP is a useful serum marker for mesothelioma, not only in the diagnosis of mesothelioma but also for monitoring responses to therapy and screening at-risk individuals. The assay is a double determinant ("Sandwich") ELISA. 84% of the mesothelioma patients exhibit elevated SMRP levels compared to 1.9% of patients with other cancers or other inflammatory lung or pleural diseases and 0% of non asbestos-exposed controls. SMRP levels correlate with tumor size. Intererstingly, when pre-diagnosis samples of serum were available several showed elevated SMRP levels up to 4 years pre-diagnosis, ie. this test may prove useful for screening and for early intervention studies. Thus determination of SMF in serum can aid the diagnosis of mesothelioma, may be useful marker of disease progression and may prove useful for screening asbestos-exposed individuals at particular risk of developing mesothelioma.

Vaccination approaches to mesothelioma treatment are a form of immunotherapy, which has been used in a number of cancers. The aim is to stimulate the persons anti-cancer defences to fight the cancer. Immunotherapy can induce an anti-tumor response in human and murine mesothelioma with some success, but no approaches have become standard therapy.

After studying nearly 100 transfectants in four different strains of mice using over 20 different tumor cell lines we have come to the following broad conclusions: 1). Strongest anti-tumor immune reactivity is generated using IL-12, GMCSF, IL-4, IL-2 and/or B7-1/2) Therapy needs to be initiated early in the disease and needs to be continuous- the only therapy that can induce regression of late, established tumor is apoptosis-induction followed by a strong CD40 signal 3) Failure of host anti-tumor immunity is not due to "ignorance" of tumor antigens but due to the development of ineffective/inappropriate antigen presentation. Clinical gene therapy and cytokine therapy trials intratumorally induced only rare dramatic tumour shrinkage. Autologous tumor vaccine plus GMCSF shows some promise. Mesothelioma immunotherapy must be based on a solid knowledge of how tumors engage with host anti-tumor immune cells before success will be seen.

It is known that a wave of mesothelioma cases is still breaking in many countries, with the peak of the mesothelioma epidemic not likely to occur until 2015 in Australia and even later in Japan and other countries. That is expected to cost western countries at least $US300 billion in compensation. Eradicating asbestos from the workplace and other dangerous locations is essential but will not stop this wave, because most of those victims already have the asbestos in their lungs. What is needed is urgent lobbying of all governments and industry

to set up an international team of experts to try to prevent or cure this disease. If they invested just 10% of the expected compensation amount on this research this group would only have to prevent or cure 10% of cases to make the investment successful, and anything over that would make it a great decision. And 10% would represent $30billion – I am sure the international community of scientists could do a lot better than 10% if such a huge sum was invested. Even 1% would have a chance of making a big difference. The international community of individuals concerned about the asbestos cancer epidemic needs to mobilize to make this happen. But if it did, it is likely that success would follow.

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