

Nanotechnology in liver cancer

M.G. Krukemeyer and W. Wagner

Department of Radio-Oncology Paracelsus-Hospital Sedanstr, Germany

Therapies of liver tumors display diverse treatment alternatives. The administration of cytostatics coupled with and without iron oxides (Fe_3O_4) has been presented in an experimental series with 36 animals with prior implantation of an R₁H rhabdomyosarcoma in the liver, since iron undergoes selective phagocytosis in the liver. In Group I, mitoxantrone is injected into the lateral tail vein of the animals (n = 12) in a dosage of 1 mg/kg of body weight. Group III (n = 12 animals) received mitoxantrone coupled with iron oxide (Fe_3O_4), and Group II (n = 12 animals) received NaCl, in the same dosage for all groups. In the sonography and in the measurement of the volume, a significantly smaller tumor growth is found in Group II compared with Group I and III. The volume was measured manually postmortally in mm³ (length x breadth x height).

The tumor volume showed the lowest growth in Group II, which was treated with mitoxantrone-coupled iron oxides. 3 animals from Group II died. The autopsy revealed no indication of the cause of death. There were neither thromboses nor allergic reactions in any of the animals. It can be clearly seen that Group I has a smaller mean volume and less scatter than Group II. The mean of Group I is also below that of Group II.

Biography

Manfred George Krukemeyer M.D., Doctor of medicine, lecturer of surgery, citizen of Germany, Paracelsus-Hospital Osnabrueck, Department Radio-Oncology, Germany. Born Muenster, Germany on 07.05.1961, Study of Medicine University of Vienna, Medical School, Austria, University of Kiel and University of Bonn, Medical School, Germany, 1982 – 1989, Department of Internal Medicine University of New York, Mount Sinai School of Medicine, USA, 1988. Pritzker School of Medicine University of Illinois, Department of Abdominal and Transplant Surgery, Chicago, USA, 1988. Resident of surgery 1991, University of Düsseldorf, Medical School, Humboldt University of Berlin, Medical School, Germany, Department of Surgery Raphaels Hospital Munster, Germany, teaching hospital of University of Munster, Medical School, Germany. Board approved certified Surgeon, Emergency Medicine Physician and Nutritionist. Surgical and research focussing on oncology, nanomedicine and transplantation. More than 50 publications in international papers, publication of 6 books, lectures about surgery and oncology in Germany, Europe, America and China, member of national and international teams of specialists in surgery and oncology.

krukemeyer-mueller@gmx.de