

**Preliminary Clinical Experiences of HIMAC Carbon-ion Radiotherapy in Japan, K. MORITA, H. TSUJII, J.-E. MIZOE, T. MIYAMOTO, T. KAMADA, T. NAKANO, S. MORITA, Y. MATSUOKA**, Research Center of Heavy Charged Particles, NIRS, Chiba - The HIMAC is the world's only heavy ion accelerator complex dedicated to medical use. There are eight phase I/II study protocols using carbon-ions, which are for cancer of the head and neck, the brain, the lung, the oesophagus, the liver, the prostate, the uterine cervix and the bone/soft tissues. Between June 1994 and February 1996, a total of 104 patients were treated. Although the number of patients analysed and follow-up periods are too small, as well as radiation doses employed may be too conservative, the preliminary results appear to demonstrate promising effects of carbon-ion radiotherapy for the head and neck tumours, the lung cancers, the cervical cancers, and the astrocytomas. Tumour response of malignant gliomas, however, was not satisfactory, possibly because of unsatisfactory total dose. The most important mission of HIMAC project is to find out in what type of human cancers the differential effects exist between the therapeutically resistant neoplasms and normal tissues that favour the latter.