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Application of Sr-89 in radiation therapy

Statement by the German Commission on Radiological Protection

Adopted at the 136th session of the Commission on Radiological Protection on
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The German original of this English translation was published by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety under the title:

Anwendung von Sr-89 in der Strahlentherapie

Stellungnahme der Strahlenschutzkommission

in: „Veröffentlichungen der Strahlenschutzkommission“, Band 40, Gustav Fischer Verlag, 1998, ISBN 3-437-21439-X.

In the event of any doubts about the meaning, the German original as published shall prevail.

Following a detailed examination of the aspects of relevance to radiation protection, the Commission on Radiological Protection considers that the symptomatic, palliative treatment of bone metastases in tumour patients using Sr-89 (metastron) may be administered on an out-patient basis. However, the Commission on Radiological Protection points out that for quality assurance reasons, only clinics which fulfil the preconditions for administering treatment using open radioactive substances in accordance with clause 6.3 of the guideline "Radiation Protection in Medicine" are to be licensed to administer out-patient treatment using Sr-89. This does not imply, that patients who receive Sr-89 treatment must be hospitalized on radiation protection grounds.

Reasoning:

- According to conservative calculations, a single injection of 150 MBq Sr-89 produces an accumulated overall external radiation dose to other persons at a distance of one meter of 3.3 μ Sv before complete decay.
- The possible radiation exposure of other persons is distinctly below 1.5 mSv per year. This means that the threshold value pursuant to clause 10.1 of the guideline "Radiation Protection in Medicine" is observed.

The estimation of the Commission on Radiological Protection afforded particular consideration to the psychological and social aspects of pain-killing treatment in the case of tumour patients. Thus, application is justified on radiation protection and medical grounds.