- Isotope administration is possible 4 – 6 weeks after total thyroidectomy or 4 –6 weeks after L-thyroxin treatment withdrawal
- radioiodine therapy should be followed by body radioiodine scan performed at 72 hours after the therapeutic dose – to asses focuses concentrating radioiodine
- After administration of therapeutic radioiodine dose the patient for 14 days should avoid to be in contact with other persons, especially with children and pregnant women

Complications after radioiodine (^{131} I) treatment

The complications are very rare and usually without clinical manifestations.

Follow-up after radioiodine (^{131} I) treatment

Follow-up at intervals 6 – 12 months after radioiodine treatment should include careful physical examination, neck ultrasonography, needle biopsy examination is indicated if a lump is noted. Serum thyroglobulin and TSH concentration should be measured. Radioiodine body scan should be performed 6 months after treatment - after 4 – 6 weeks of L-thyroxin treatment withdrawal

24.
VALIDATION OF CONFORMAL RADIOTHERAPY TREATMENT PLANNING SYSTEMS USING AN ANTROPOMORPHIC PHANTOM AND THERMOLUMINESCENCE DOSIMETRY

M.P.R. Waligórski[1,2], J. Lesiak[1], E. Byrski[1], B. Rozwadowska-Bogusz[1], R. Barańczyk[1], E. Góra[1], P. Bilski[2], P. Olko[2]

(1) Centre of Oncology,
Garncarska 11, PL-30-115 Kraków, Poland
(2) Institute of Nuclear Physics,
Radzikowskiego 152, PL-31-342 Kraków, Poland

Within the requirements of a Quality Assurance programme in a radiotherapy department, the ability of a treatment planning system (TPS) to accurately calculate dose distributions under realistic conditions encountered in radiotherapy (RT) should be validated. This may be accomplished by thermoluminescence (TL) dosimetry in simulated treatment of antropomorphic phantoms. In our radiotherapy department, several planning systems are used concurrently in 3D conformal treatment of larger volumes (with irregular fields obtained via individual shielding or multileaf collimation) and of very small volumes (stereotactic technique), by external megavoltage photon beams. Realistic 3D treatment plans were prepared using CadPlan, Theraplan and BrainLab TPS for treating volumes in an Alderson phantom, which was prepared for topometry (CT-scanned) and irradiated in fully simulated conditions of patient RT. Suitably selected TL detectors (some custom-produced for these measurements), were placed inside and around the treated volumes in the phantom. For every photon beam applied (Co-60, 6 MV or 9 MV) the TL detectors, individually corrected, were calibrated in a standard solid phantom against ionisation chamber dosimetry. For irradiation of larger volumes, standard MTS-N (LiF:Mg,Ti) detectors were used. For stereotactic irradiation of small volumes in the head (6 MV) special miniature thermoluminescent LiF:Mg,Ti and LiF:Mg,Cu,P were developed. The technique of detector calibration, preparation of Alderson phantom for simulated RT, detector readout and interpretation of the measured versus calculated values of dose at measurement points inside the phantom, will be described.

25.
ASSESSMENT OF THE ACCURACY OF RADIOTHERAPY BY DIGITAL SUPERPOSITION OF PORTAL AND RFERENCE IMAGES

P. Gut[1], P. Kukołowicz[2], L. Chmielewski[1], A. Dąbrowski[2]

[1] Institute of Fundamental Technological Research, PAS, Warsaw,
[2] Holycross Cancer Centre, Kielce

Teleradiotherapy imposes the requirement of **high accuracy** in reference to its medical as well as technical aspects. Close adherence to the geometrical parameters set up in therapy planning is vital. The current location of the irradiation field and anatomical structures can be recorded in the *portal image* acquired during the therapy course. Assessment of the treatment accuracy consists in registration (overlaying) of the reference and the portal image to compare the layout of anatomical structures and the irradiation field. Edges of the compared features are difficult to find in the portal image, which is inherently of low contrast. Hence, not all the edges present in the reference image can be found in the portal one, and the comparison of geometries in these images is difficult and time-