

DOSE DISTRIBUTIONS IN THE EYE FROM ¹⁰⁶Ru APPLICATOR

J. Kierzkowski*, J. Malicki*, G. Kosicka*, A. Roszak*, M. Karolczak-Kulesza**, K. Pecold**, J. Kocięcki**

* - Greatpoland Cancer Centre, ul. Garbary 15, 61-866 Poznań,

** - Clinic of Ophthalmology, ul. Długa 1/2, 61-866 Poznań,

Beta irradiation with ¹⁰⁶Ru applicator is one of the methods of treatment of the tumours located in eye.

Method

In this method we give a dose of 60 Gy to the tumour top. The tumour top is located between 2 and 10 mm from eye surface and it is defined as the border of cancer infiltration. We use echogram to border localisation. From the source certificate we know that the dose rate is charged with a 30% determination error. We increased the calculated dose considering the error value so that at least 60 Gy dose to the tumour top was delivered.

The critical dose for the sclera is 1500 Gy and for the lens 15 Gy respectively. We calculated the maximal dose by the same procedure as the minimal dose through modifying dose rate by certificate error. We calculated doses in the sclera in three places: on the sclera's surface, in the middle of it (about 0.6 mm depth) and on the sclera's bottom edge which is the base of the tumour (about 1.2 mm depth).

Results

Nineteen patients were treated. In all cases the tumour top received at least 60 Gy. In 4 cases it was impossible to deliver a sufficient dose (minimum 60 Gy) at the tumour top without exceeding 1500 Gy in the sclera. It was because of the tumour size was too large (more than 8 mm). In these cases, there was a probability of exceeding 1500 Gy on the sclera's surface when we took the maximal dose rate option. In 4 cases the dose in the lens exceeded a critical dose but we have got the medical agreement to do that.

The important thing is to check the tumour size because the applicator should cover the cancer.

This method of treatment time calculation is fast and easy. We have written the computer program for that procedure which reduced the time of calculation and preparation of the protocol up to a few minutes.

SURGERY FOLLOWED BY IRRADIATION IN GLIOBLASTOMA MULTIFORME. A REPORT OF 28 CASES

M. Nowaczyk, A. Kobińska, M. Wełnicka-Jaśkiewicz, J. Borowska-Lehman, A. Badzio, J. Jassem

Dept. of Oncology and Radiotherapy, Medical University, 80-211 Gdańsk, Poland

Treatment results in glioblastoma multiforme, irrespective of the management, are poor. Median survival in patients managed with surgery alone is 4 months and in those treated with surgery and adjuvant radiotherapy -9 months.

Twenty eight patients with glioblastoma multiforme were treated at the Department of Oncology and Radiotherapy, Medical University of Gdańsk between 1991 to 1995. There were females and 20 males and the median age was 58 years (range 18 to 75 years). In 22 cases (78%) diagnosis was confirmed by histology, and in the remaining six cases biopsy was not taken due to the deep localization of the tumour; in all these patients diagnosis was based on CT

imaging. All patients were irradiated with cobalt unit and received conventional radiotherapy, 5 days a week, 1.8 Gy per fraction. The first part of treatment included whole brain irradiation (40 Gy) delivered through lateral parallel opposed fields. Thereafter in all instances a brain CT was done and in case of regression or stabilisation (23 pts), a boost dose of 15-22 Gy with reduced portals was delivered. Total dose delivered to the tumor bed was 55-62 Gy. Radiotherapy tolerance was satisfactory and there were no serious complications and interruptions of treatment.

Median local recurrence-free survival was 5.3 months, and a median survival - 9.9