

# CONFORMITY INDEX FOR BRAIN CANCER PATIENTS

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**Abstract** – The purpose of this study is to present the level of conformity achieved by using 3D conformal radiotherapy for brain cancer patients. Conformity index is a helpful quantitative tool for assessing (evaluating) the quality of a treatment plan.

Treatment plans made for ninety patients with brain tumor are worked on this paper. The patients are in supine position and immobilized with thermoplastic masks for the head. Computed tomography data sets with 5 mm scan thickness are used to create a 3D image. All structures of interest are contoured. In order to obtain an optimal dose distribution, treatment fields are fit around target volume with set-up margins of 7mm in each direction.

The conformity index values are between 1.21 and 2.04. Value of 1.8 is exceeded in eighteen cases; nine of them are bigger than 1.9 and only three of them are above 2. The target volume for each of these extreme CI values is ideal covered (between 95% and 105% of the prescribed dose). The most acceptable conformity index value in this paper belongs to the plan with the lowest minimal dose (84.7%).

It can be concluded that conformity index is necessary but not sufficient factor for assessing radiation treatment plan conformity. To be able to estimate the acceptability of some treatment plan in daily practice, additional information as minimal, maximal and mean dose into target volume, as well as health tissues coverage must be taken into account.