

OBSEVANJE CELEGA TELESA PRI PEDIATRIČNIH BOLNIKI V SEDACIJI

TOTAL BODY IRRADIATION IN SEDATED PAEDIATRIC PATIENTS

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IZVLEČEK

Uvod in namen: Obsevanje celega telesa je posebna obsevalna tehnika v radioterapiji, ki se uporablja skupaj z intenzivno kemoterapijo pri bolnikih z levkemijo ali malignim limfomom pred presaditvijo kostnega mozga ali krvotvornih matičnih celic. Namen je predstaviti pripravo na obsevanje celega telesa, izvedbo narisa pljučnih polj za zaščito pljuč in obsevanje pri pediatričnih bolnikih v sedaciji.

Metode dela: Priprava na obsevanje se izvede na računalniško tomografskem simulatorju (CT simulator) v sodelovanju s pediatričnim oddelkom za hematologijo in timom iz oddelka za anestezijo, ki bolnika intubira z žičnatim tubusom, saj bolnik med pripravo na obsevanje in med obsevanjem leži ne samo v anteroposteriornem, ampak tudi v posteroanteriornem položaju. CT slikanje zajema prsni koš nad apeksi pljuč do vključno 2 cm pod celotno prepono. Uporabimo protokol CT slikanja za prsni koš.

Rezultati: Medicinski fizik izmeri bolnikovo dolžino od roba temena do konca prstov na nogah ter debelino bolnika s kljunastim merilom v predelu popka in podatke zabeleži na obsevalni karton za izračun hitrosti pomika mize in obsevalne doze. Zdravnik radioterapevt vrisuje v sistem za načrtovanje zaščito za pljuča. Sledi naris pljučnih polj na bolnikovo kožo na linearnem pospeševalniku dva dni po pripravi bolnika na CT simulatorju. Nato se izdelajo individualne zaščite za pljuča iz Woodove zlitine. Pred obsevanjem bolnika s fotonskimi žarki energije 6 MV se postavi poseben sistem pomične mize.

Razprava in zaključek: Bolnika se med obsevanjem (6 dni, zjutraj in zvečer z dozo 2 Gy na frakcijo s skupno tumorsko dozo 12 Gy) vzdržuje v rahli sedaciji, saj bi z ekstubiranjem preveč poškodovali sluznico dihalnih poti. Celotna izvedba postopkov zahteva dobro sodelovanje in koordinacijo med vsemi člani timov. V skladu z novimi smernicami zdravljenja smo od leta 2021 na radioterapevtskem oddelku Onkološkega inštituta v Ljubljani obsevali 2 pediatrična bolnika v sedaciji.

Glavne besede: Obsevanje celega telesa, pediatrični bolniki v sedaciji, načrtovane individualne zaščite

ABSTRACT

Introduction: Total body irradiation is a special radiation therapy technique used in combination with intensive chemotherapy in patients with leukaemia or malignant lymphoma prior to bone marrow or hematopoietic stem cell transplantation. The aim is to present the preparation for total body irradiation, the performance of lung field drawing for lung protection and irradiation in paediatric patients under sedation.

Methods: The preparation for irradiation is performed using a computed tomography simulator (CT simulator) in collaboration with the paediatric haematology department and the anaesthesia team, who intubate the patient with a wire-reinforced tube. This is necessary as the patient is positioned not only in the anteroposterior position during both the preparation for irradiation and the irradiation itself, but also in the posteroanterior position. The CT scan covers the chest area from above the lung apices to at least 2 cm below the entire diaphragm. The standard CT imaging protocol for the chest is used.

Results: The medical physicist measures the patient's length from the edge of their temple to the tip of the toes, and their thickness at the navel using a calliper. These measurements are recorded on the irradiation chart to calculate both the table feed rate and the irradiation dose. The radiotherapist subsequently contours the lung shielding in the planning system. This is followed by drawing the lung fields on the patient's skin on the linear accelerator two days after preparing the patient on the CT simulator. Individual Wood's alloy lung shields are then made. Before irradiation, a specialised sliding table system is set up, and is designed for the total body irradiation of patients using photon beams with an energy of 6MV.

Discussion and conclusion: The patient is kept lightly sedated during the radiation treatment (6 days, morning and evening, at a dose of 2 Gy per fraction with a total tumour dose of 12 Gy), as extubation would cause too much damage to the mucous membranes of the respiratory tract. The overall performance of the procedures requires good cooperation and coordination between all team members. In accordance with the updated treatment guidelines established in 2021, two paediatric patients have undergone irradiation under sedation within the radiotherapy department of the Ljubljana Institute of Oncology.

Keywords: total body irradiation, paediatric patients under sedation, planned individual shields

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