Karakterisasi Electronic Portal Imaging Device (EPID) sebagai dosimeter untuk verifikasi IMRT dan VMAT = Characterization of electronic portal imaging device EPID as patient specific QA for IMRT and VMAT

Hendya Perbangkara, author

Abstrak

[Studi ini telah dilakukan untuk mengetahui karakteristik dari EPID dosimetri yang digunakan sebagai verifikasi pasien IMRT dan VMAT. Penelitian ini dilakukan dengan membandingkan indeks gamma dari hasil verifikasi 5 pasien brain, 5 pasien cervix, 5 pasien kepala dan leher serta 5 pasien paru menggunakan EPID dosimetri dengan MatriXX 2D array pada dua Linac yang berbeda di instalasi radioterapi MRCCC SHS dan Siloam Hospital TBS. Dari penelitian ini dihasilkan nilai indeks gamma untuk kasus IMRT di MRCCC 99.59% ± 0.46 untuk EPID dosimetri dan 99.13% ± 0.75 untuk MatriXX 2D array, sedangkan di Siloam Hospital TBS 99.8% ± 0.20 untuk EPID dosimetri dan 99.71% ± 0.14 untuk MatriXX 2D array. Pada kasus VMAT di MRCCC 97.71% ± 1.27 untuk EPID dosimetri dan 99.50% ± 0.39 untuk MatriXX 2D array, sedangkan di Siloam
Hospital TBS 97.78% ± 1.45 untuk EPID dosimetri dan 98.66% ± 1.26 untuk MatriXX 2D array. Kesimpulan dari penelitian ini adalah perbedaan antara EPID dosimetri dan MatriXX 2D array di kedua rumah sakit menunjukan nilai kurang dari 1% untuk kasus IMRT dan kurang dari 2% untuk kasus VMAT.
.....This work was aimed to study the characteristics of EPID dosimetry in use as patient specific QA for IMRT and VMAT. We compare result of gamma index from patient specific QA with each 5 cases of brain, cervix, head and neck, lung
using EPID dosimetry and MatriXX 2D array in two different linacs at MRCCC SHS and Siloam Hospital TBS. Calculated gamma index from IMRT case in MRCCC SHS ware 99.59% ± 0.46 for EPID dosimetry and 99.13% ± 0.75 for MatriXX 2D array, meanwhile at Siloam Hospital TBS the calculated gamma index were 99.8% ± 0.20 for EPID dosimetry and 99.71% ± 0.14 for MatriXX 2D array.Gamma index from VMAT cases in MRCCC were 97.71% ± 1.27 for EPID dosimetry and 99.50% ± 0.39 for MatriXX 2D array, and in Siloam Hospital TBS the value were 97.78% ± 1.45 for EPID dosimetry and 98.66% ± 1.26 for MatriXX 2D array. We conclude that the difference between EPID dosimetry and Matrixx 2D arrays at two hospitals were less than 1% and less than 2% for IMRT and VMAT cases, respectively. This work was aimed to study the characteristics of EPID dosimetry in use as patient specific QA for IMRT and VMAT. We compare result of gamma index from patient specific QA with each 5 cases of brain, cervix, head and neck, lung using EPID dosimetry and MatriXX 2D array in two different linacs at MRCCC SHS and Siloam Hospital TBS. Calculated gamma index from IMRT case in MRCCC SHS ware 99.59% ± 0.46 for EPID dosimetry and 99.13% ± 0.75 for
MatriXX 2D array, meanwhile at Siloam Hospital TBS the calculated gamma index were 99.8% ± 0.20 for EPID dosimetry and 99.71% ± 0.14 for MatriXX 2D array.Gamma index from VMAT cases in MRCCC were 97.71% ± 1.27 for EPID dosimetry and 99.50% ± 0.39 for MatriXX 2D array, and in Siloam Hospital TBS the value were 97.78% ± 1.45 for EPID dosimetry and 98.66% ± 1.26 for MatriXX 2D array. We conclude that the difference between EPID dosimetry and Matrixx 2D arrays at two hospitals were less than

1% and less than 2% for IMRT and VMAT cases, respectively.;This work was aimed to study the characteristics of EPID dosimetry in use as
patient specific QA for IMRT and VMAT. We compare result of gamma index
from patient specific QA with each 5 cases of brain, cervix, head and neck, lung
using EPID dosimetry and MatriXX 2D array in two different linacs at MRCCC
SHS and Siloam Hospital TBS. Calculated gamma index from IMRT case in
MRCCC SHS ware 99.59% ± 0.46 for EPID dosimetry and 99.13% ± 0.75 for
MatriXX 2D array, meanwhile at Siloam Hospital TBS the calculated gamma
index were 99.8% ± 0.20 for EPID dosimetry and 99.71% ± 0.14 for MatriXX 2D
array.Gamma index from VMAT cases in MRCCC were 97.71% ± 1.27 for EPID
dosimetry and 99.50% ± 0.39 for MatriXX 2D array, and in Siloam Hospital TBS
the value were 97.78% ± 1.45 for EPID dosimetry and 98.66% ± 1.26 forMatriXX
2D array. We conclude that the difference between EPID dosimetry and Matrixx
2D arrays at two hospitals were less than 1% and less than 2% for IMRT and
VMAT cases, respectively., This work was aimed to study the characteristics of EPID dosimetry in use as
patient specific QA for IMRT and VMAT. We compare result of gamma index
from patient specific QA with each 5 cases of brain, cervix, head and neck, lung
using EPID dosimetry and MatriXX 2D array in two different linacs at MRCCC
SHS and Siloam Hospital TBS. Calculated gamma index from IMRT case in
MRCCC SHS ware 99.59% ± 0.46 for EPID dosimetry and 99.13% ± 0.75 for
MatriXX 2D array, meanwhile at Siloam Hospital TBS the calculated gamma
index were 99.8% ± 0.20 for EPID dosimetry and 99.71% ± 0.14 for MatriXX 2D
array.Gamma index from VMAT cases in MRCCC were 97.71% ± 1.27 for EPID
dosimetry and 99.50% ± 0.39 for MatriXX 2D array, and in Siloam Hospital TBS
the value were 97.78% ± 1.45 for EPID dosimetry and 98.66% ± 1.26 forMatriXX
2D array. We conclude that the difference between EPID dosimetry and Matrixx
2D arrays at two hospitals were less than 1% and less than 2% for IMRT and
VMAT cases, respectively.]