

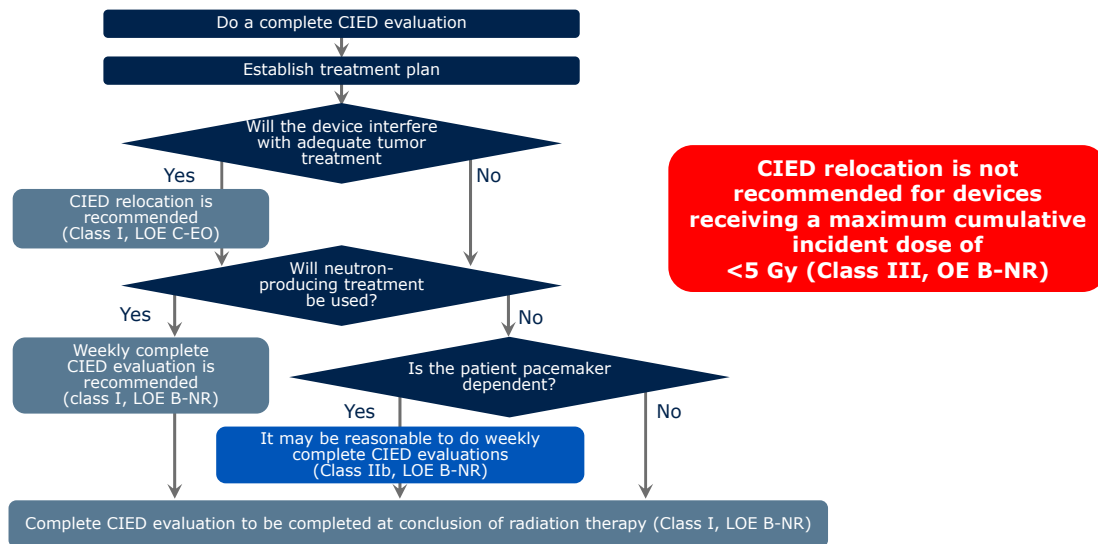
## Managing Radiation Therapy in the CIED Patient

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1

### CIED Management for Radiation Therapy



Indik et al: Heart Rhythm, Vol 14, No 7, July 2017



2

## Checklist for Performance of Radiation Treatment

### CIED Clinic Checklist

- 1 CIED implantation date:
- 2 CIED implant indication:
- 3 Device manufacturer and model:
- 4 Pacing-dependent (intrinsic HR <40 bpm): Yes [ ] No [ ]
- 5 Complete weekly CIED evaluation recommended: Yes [ ] No [ ]
- 6 System features:
  - Pacemaker/CRT-P [ ] ICD/CRT-D [ ]
  - Pacing mode: \_\_\_\_\_
  - Minimum pacing rate: \_\_\_\_\_
  - Maximum tracking rate: \_\_\_\_\_
  - Maximum sensor rate: \_\_\_\_\_
  - Measurements of the pacing system function and parameters are stable: Yes [ ] No [ ]
- 7 CIED evaluation following completion of radiation therapy:
  - Measurements of the pacing system function and parameters are stable: Yes [ ] No [ ]
  - Comments: \_\_\_\_\_



3

## Manufacturer Recommendations Regarding Safe Radiotherapy in PM/ICD Patients

Recommendation	BIOTRONIK	Boston Scientific
Device checks		
Before RT course	Yes	Specific to each patient
During RT course	Not stated	Specific to each patient
After RT course	Yes, including a supplementary follow-up shortly after RT	Yes, including subsequent close monitoring of the device function
Maximal PM dose	2 Gy	No safe dose (2 Gy as a reference)
Maximal ICD dose	2 Gy	No safe dose (2 Gy as a reference)
Maximal beam energy	<10 MV	Not stated
Inactivation of antitachycardia therapies	Yes	Yes
Lead shielding of the device	Yes	All available shielding options, including both internal shielding within the LA and external shielding of the patient
Heart rhythm monitoring during RT	Yes	As determined most appropriate by the physician team

Zaremba et al: PACE 00:1, 2015



4

## Manufacturer Recommendations Regarding Safe Radiotherapy in PM/ICD Patients

Recommendation	Medtronic	St. Jude Medical
Device checks		
Before RT course	Not stated	Not stated
During RT course	Yes (if recommended safe dose is exceeded)	Yes (a detailed evaluation once or twice during the RT course in PM-dependent patients)
After RT course	Yes	Yes
Maximal PM dose	5 Gy	No safe dose
Maximal ICD dose	1-5 Gy depending on model	No safe dose
Maximal beam energy	≥10 MV	Not stated
Inactivation of antitachycardia therapies	Yes	Yes
Lead shielding of the device	No (ineffective against neutrons)	Not stated (reduction in the device dose is recommended)
Heart rhythm monitoring during RT	Not stated	Yes

Zaremba et al: PACE 00:1, 2015



5

## Summary: Radiation Therapy in the CIED Patient

- Determine maximum cumulative incident radiation dose the CIED will receive, if < 5 Gy, do not move
- Consider relocating the CIED if cumulative dose will be > 5 Gy and/or the device will impede effective Rx of tumor
  - Should pacemaker-dependent patient have other consideration?
- Frequency of CIED evaluation dependent on whether radiation treatment is neutron-producing



6