In-Vivo Dosimetry with SagiNova®

Integrated System for In-Vivo Measurement

In-Vivo Dosimetry System

The integrated and independently working In-Vivo Dosimetry System is operated from the afterloader control software. It facilitates real-time dose monitoring and automatic documentation of the doses to bladder and rectum in the treatment report.

The comfortable In-Vivo Dosimetry System within SagiNova® saves space and eases handling.

Integrated System

In-vivo dosimetry is an important quality assurance method for HDR brachytherapy of e. g. cervical cancer. It provides information that helps to assure precise, targeted and conformal dose delivery. Studies have shown that in-vivo dosimetry is feasible and can be performed to estimate the dose to the rectum during HDR brachytherapy also using Co-60[1]. SagiNova® is equipped with a multi-channel dosimeter system for in-vivo patient dosimetry during radiation therapy. It is directly integrated in the afterloader and controlled via the SagiNova® control software.

Dose Monitoring in Rectum and Bladder

The unique system allows direct monitoring of doses to rectum and bladder independently and "live" on the control console during the treatment. Dose limit values can be defined via the SagiNova® treatment control software. Warnings are displayed if bladder or rectum dose limits are exceeded. The data is documented in the treatment report.

The Probes

The probe for bladder measurements has a diameter of only 3 mm and is used together with a Foley catheter. The flexible rectum probe with five detectors, spaced 15 mm apart from each other, enables the measurement of the dose distribution.

Calibration[2]

Both probes can be automatically calibrated with SagiNova's quality assurance tool, QAssist, the afterloading calibration phantom and the afterloader source as reference. The built-in software takes the specific calibration geometry into account and makes calibration a one-click solution.

Phantom

A cylindrical Perspex (PMMA) phantom for the calibration of the semiconductor probes is included in the system. It comes with a tripod and can also be used for the source calibration in combination with a thimble ionization chamber.

Scientific References

[1] Zaman ZK, et al., Comparison of planned and measured rectal dose in-vivo during high dose rate Cobalt-60 brachytherapy of cervical cancer, Physica Medica (2014)

[2] Venselaar, J., Pérez-Calatayud, J. (ed), Calibration of brachytherapy sources, p. 49f, in: ESTRO Booklet No. 8, A practical guide to quality control of brachytherapy equipment, 2004, Brussels

Dose measurement at bladder and rectum with semiconductor probes. The connection box system is integrated in the SagiNova® afterloader.

Eckert & Ziegler

Contributing to saving lives

In-Vivo Dosimetry with SagiNova®

Set Content SET0214
Set for In-Vivo Dosimetry, integrated in SagiNova®

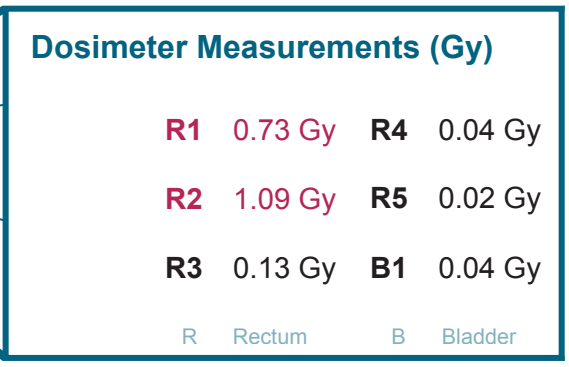
Quantity	Item	Part number
1	Afterloading Calibration Phantom T9193	1321-3035
1	Multichannel Dosimeter VIVODOS® (built-in device, T10018)	1379-0241
1	Fivefold semiconductor rectum probe T9112	1321-3034
1	Single semiconductor bladder probe T9113	1379-0222
1	AL adapter for rectal probe T9112	1321-3037
1	AL adapter for bladder probe T9113	1379-0227
1	AL adapter for afterloading applicator LAR01-01	1321-3039
1	Tripod for AL calibration phantom L651002	1379-0211
2	AL adapter, blind plug T9193/102	1321-3036
1	AL detector connection box	1379-0233
1	Cable for AL detector connection box	1379-0234

Absolute Dosimetry Sets

Set	Description
SET0203	Universal dosimeter UNIDOS® E, connecting system M (incl. UNIDOS® E, well-chamber type TM33005)

Plug-in connection for rectum and bladder probe

Dose Monitoring Displayed on the Control Unit



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