QUALITY MANAGEMENT PROGRAM FOR HDR

ISOTOPE: Ir-192: Afterloader Brachytherapy

PROCEDURES: High Dose Rate (HDR) brachytherapy implants intracavitary, interstitial, intraluminal

DOSAGE: Written Directive or Prescribed Dose

REFERENCE: USNRC Regulatory Guide 8.33

ITEMIZED LIST OF POLICIES

C3.2.1: WRITTEN DIRECTIVE

The authorized user (Radiation Oncologist) is required to complete a written directive to administer a radiation dose using HDR brachytherapy techniques. Such a written directive will be dated and signed by Radiation Oncologist prior to and before administration of HDR treatment.
Refer to HDR # 11

C3.2.2.: PATIENT IDENTIFICATION

The patient identification system will include asking the patient's name, asking patients birthdate, address or SSN with the information contained in the patient's chart.
In case of patients who may not be in a position to respond to the query, the patient information tag will be matched with the information in the patient's chart. In absence of patient ID tag, the person (nursing staff, ambulance staff and relative) who accompanied the patient will be queried for patient identification. This information will also be verified by matching the patient with the photograph (face) in the treatment chart.

C3.2.3 PLAN OF TREATMENT

The authorized user (Radiation Oncologist) will approve and sign the plan of treatment before the HDR treatment is initiated. This plan will include the total prescribed dose, dose per fraction, elapsed period between treatments, treatment volume or point is clearly defined and limiting dose to other tissues, if desired.

C3.2.4 CLARIFICATION OF PLAN OF TREATMENT

Both Radiation Oncologist and Medical Physics staff are required to seek clarification from the Radiation Oncologist if there is any doubt concerning details of the treatment plan or if any miscommunication is suspected.

C3.2.5 VERIFYING POSITION OF APPLICATOR IN PATIENTS

The authorized user (Radiation Oncologist) will verify the position of the applicator in the patient by radiographs. Only dummy wire/guide will be utilized for this procedure.

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C3.2.6 LOCALIZING FILMS:

The policies require that localization films are taken to plan the treatment.
The Radiation Oncologist will define any organ or point needed for calculation
The Radiation Oncologist will determine the dwell times from the radiographs
These localization films (AP and Lateral) are taken using simulator set-ups or portable x-ray unit setup in the treatment room.
The Radiation Oncologist will sign and date radiographs

C3.2.7 VERIFICATION OF TREATMENT PLAN:

The treatment plan, prescribed dose and written directive shall be verified by the Radiation Oncologist. This verification of treatment plan shall be signed by the Radiation Oncologist All information about the procedure should be documented. Source strength should be cross checked with decay charts. The Radiation Oncologist will sign and date treatment plan. Refer to HDR # 12

C3.2.8 VERIFICATION OF DOSE CALCULATION

The Medical Physics staff will verify the computer plan by an independent manual calculation of dose to a point. The treatment parameters on the patient's programmed card will be checked with a computer plan. No HDR treatment will be given without checking the details of the treatment plan. The physicist will sign and date all verifications.

C3.2.9 WRITTEN RECORD:

The treatment record will include the date, elapsed days, treatment number, area treated dose per field, total dose and initials of person performing the treatment. A physicist and oncologist will sign to confirm their presence during the treatment.

C3.2.10 REVIEW OF DOSE DELIVERED:

The Medical Physicist will verify that the HDR treatment was delivered according to the approved computer generated treatment plan. The HDR final printout will be included in the patient's written record. Refer to HDR # 13

C3.2.11 ACCEPTANCE TESTING OF TREATMENT PLANNING SYSTEM:

The acceptance testing program will include standardized plans with known dose at selected points around the applicator.

C3.2.12 PERIODIC REVIEWS:

The HDR brachytherapy QM program will include periodic quality reviews using flow sheet developed for vaginal applicator. The QM Audit will be conducted in less than 12 month interval. Refer to HDR # 14.

RECORDABLE EVENT:

1 No written order
2 No daily dose record
3 Calculated dose greater than 10% of prescribed dose for each treatment fraction.

ACTION: Record event and maintain on file.

MISADMINISTRATION:

1 Wrong patient
2 Wrong anatomic site
3 Using leaking sources (or broken source)
4 Failure to remove temporary implant
5 Calculated dose greater than 20% of prescribed dose for each treatment fraction.

ACTION:

1 Record events
2 Notify (telephone) NRC (Radiation Control Office) in 24 hours
3 Notify oncologist
4 Inform patient
5 Written report to RCO in 30 days.

BMC: DIVISION OF RADIATION ONCOLOGY
HIGH DOSE RATE BRACHYTHERAPY PRESCRIPTION FORM
WITH IR-192

PATIENT NAME: _____ D.O.B. _____

DIAGNOSIS _____ STAGE: _____

TREATMENT SITE _____

TECHNIQUE: INTERCAVITORY ☐ INTRALUMINAL ☐
SURFACE ☐ INTERSTITIAL ☐

DOSE PLANNED _____ cGy TO: _____

DOSE/FX _____ cGy **#of FX** _____ **FX/WK** _____

 # OF CATHETERS ___ ___

APPLICATOR _____

SPECIAL POINTS OF INTEREST _____

DOSE LIMIT _____

REEVALUATE AT: _____

ONCOLOGIST SIGNATURE _____

DATE: _____

COMMENTS:

_____
_____
_____
_____

DOSE CHANGED TO _____ cGy TO: _____

DATE: _____ SIGNATURE _____

TREATMENT PLANNING AND CALCULTIONS

Radiation Oncologist Date	Dosimetrist Date	Medical Physicst Date

TREATMENT DELIVERED

Date Year 19	Elapsed Days	Rx #	Field #	appl/ field size	Dwell Positions per Catheter 1	2	3	4	5	6	7	8	9	10	11	12	Daily Dose (cGy)	Total Dose (cGy)	Therapist	Physicist	M.D.

HDR QM CHECKLIST

MODEL #_____SN# _____ LICENSE_____

	PROCEDURES	COMPLETED		COMMENTS
		YES	NO	
1	QA performed			
2	Oncologist obtained consent			
3	Oncologist obtained two forms of patient verification			
	a. Patient gives name			
	b. Picture			
	c. Patient gives date of birth			
	d. Wrist band			
	e. Patient writes names			
4	Guidewire with dummies used for localization			
5	Planning films reviewed			
6	Prescription written			
7	Treatment plan (Plato) performed			
8	Plan verified manual calculation			
9	Plan approved and signed by oncologist			
10	Treatment parameters on card checked on HDR unit			
11	Physicist or RSO present during treatment			
12	Oncologist present during treatment			
13	Nurse present during treatment			
14	Oncologist fills out treatment record and signs			
15	Oncologist reviewed treatment summary			

Completed by _____ Date: _____

Reviewed by _____ Date: _____

HDR Remote Afterloader Quality Management Program
Written Directive Worksheet
Vaginal Applicator for Gyn Treatments

Written Directive

(Warning: If any confusion exists as to how to carry out the written directive, you are required to consult the authorized user who completed the written directive prior to continuing the procedure.)

Name of Patient: _____

Site of Implant: _____

Total dose to be delivered to specified point(s): _____ cGy

Number of fractions to be delivered: _____ Dose per fraction _____ cGy

Fraction # of this treatment: _____ Planned date of this fraction delivery _____

Authorized User Signature: _____ Date/Time: _____

Applicator Items Inserted Into Patient:

Diameter of Cylinders Used:

20mm _____ 25mm _____ 30mm _____ 35mm _____ 40mm _____

Is Vaginal Tube (straight tube to be used?: _____

or will IU Tube be used?: 40mm/15 _____ 6mm/30 _____ 80mm/45 _____

X-ray catheter inserted into Vaginal Applicator?: _____

Authorized User Signature: _____ Date/Time _____

Evaluation of Radiographic Films Taken with Applicator in Patient (by authorized user).

Is the placement of the applicator acceptable? Yes No

Dwell Positions to be activated (check each one):

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Specification of dose to be delivered by this treatment: _____ cm from the surface of the cylinder

Have Bladder anad Rectum Dose Calculation Points been marked?: _____

Maximum Dose to Bladder: _____ cGy Maximum dose to rectum: _____ cGy

Authorized User Signature: _____ Date/Time: _____

Generation of Computer Isodose Plan (by radiation physicist or medical dosimetrist):

Is treatment plan optimized to match dose specification by the authorized user? Yes No

Treatment Plan Doses:

Dose at_____cm from the surface of the cylinder is_____cGy.

Bladder Dose:_____cGy (% of Specification Dose_____%)

Maximum Rectal Dose:_____ cGy (% of Specification Dose_____%)

Do the above dose values match the dose specifications of the authorized user? Yes No

Signature of individual responsible for computer isodose plan:

_____ Date/Time:_____

Evaluation of Computer Generated Isodose Plan (by radiation physicist):

Dose the computer generated isodose plan match the written directive dose specifications Yes No

Do the active dwell positions for the vaginal applicator match the positions specified on the radiographic localization films? Yes No

Signature of radiation physicist_____Date/Time: _____

Approval of Computer Generated Isodose Plan by Authorized User:

Dose the computer generated isodose plan submitted to you for this patient match your written directive: Yes No

Authorized User Signature_____ Date/Time _____

Check of HDR Printout Against Computer Generated Isodose Plan by Radiation Physicist:

Does HDR Printout of dwell locations and dwell times match the values on the computer generated isodose plan? _____

Signature of radiation physicist _____ Date/Time _____

Verification of Patient Identity:

Verification of Patient ID is accomplished by asking the patient her name and one of the following (circle one):

Signature of Individual Verifying Patient Identity: _____

Verification of HDR Dose Delivery by Radiation Physicist:

Was the HDR treatment delivered according to the approved computer generated isodose distribution printout? Yes No

Has the HDR treatment console final printout been placed into the Patient's HDR file? Yes No

Signature of radiation physicist_____Date/Time _____