SFHR11
Deliver external beam megavoltage radiation

Overview

This standard is concerned with the delivery of external beam megavoltage radiation to an individual patient according to a previously developed treatment plan.

Users of this standard will need to ensure that practice reflects up to date information and policies.

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Performance criteria

You must be able to:

- P1 apply standard precautions for infection control and other appropriate health and safety measures
- P2 check and assess all treatment parameters and confirm that the treatment can be safely and accurately delivered
- P3 assess discrepancies against the locally stated tolerances to determine whether treatment can proceed or further action is required
- P4 make a final critical evaluation of the environment and patient prior to delivery of the radiation dose
- P5 review any deviations from the protocol and take appropriate action
- P6 check all parameters, settings, monitoring and measuring devices used in megavoltage external beam radiation for function and accuracy of setting before treatment is delivered
- P7 check, before treatment commences, to ensure that no one except the patient remains in the room
- P8 deliver the dose according to the plan
- P9 observe the patient, equipment and treatment room during the treatment to detect any untoward events which may affect treatment delivery
- P10 provide an accurate permanent record of the treatment given by megavoltage external beam radiation according to local protocols
- P11 assess the patient's needs on completion of the procedure and offer support as
- P12 respond appropriately to any incidents, errors or accidents according to local and national requirements
- P13 regularly compare the cumulative dose with the original plan throughout the course of treatment to determine the degree of compliance, and take corrective action where necessary
- P14 recognise where help/advice is required, and seek this from appropriate sources

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Knowledge and understanding

You need to know and understand:

K1 the legislation and protocols relating to radiotherapy, in the areas of:
- K1.1 current radiation protection regulations and local rules
- K1.2 local protocols for data entry, utilisation, recording and transfer
- K1.3 local protocols for verifying and validating treatment
- K1.4 local protocols on informed consent
- K1.5 local protocols for patient identification
- K1.6 national and local guidelines for radiotherapy planning and treatment

K2 the importance of applying standard precautions and the potential consequences of poor practice

K3 the limitations of your own knowledge and experience and the importance of not operating beyond this

K4 the roles and responsibilities of other team members

K5 relevant anatomy, physiology and pathology e.g. regional, cross-sectional and functional

K6 signs of patient distress and anxiety

K7 clinical signs and symptoms which require attention and intervention

K8 contraindications for treatment

K9 concurrent and malignant disease progression and the potential impact on physiological systems

K10 the side effects of radiotherapy and ways of managing them

K11 specific infection control procedures related to immunosupressed or compromised patients

K12 the effects of other treatment modalities used in treatment delivery and their side-effects e.g. chemotherapy

K13 how to critically appraise a patient's preparation and treatment against relevant planning/patient information

K14 the principles of radiobiology including:
- K14.1 effects of radiation on the cell cycle
- K14.2 dose and fractionation regimes

K15 the principles of radiotherapy including:
- K15.1 advantages, disadvantages, risks and benefits of radiotherapy
- K15.2 patient positioning and immobilisation in order to optimise reproducibility of treatment delivery
- K15.3 selection of appropriate treatment technique for optimum delivery
- K15.4 contra-indications to treatment

K16 the principles of radiotherapy physics including:
- K16.1 interaction processes with matter
- K16.2 production and utilisation of images
- K16.3 use of beam modifiers in changing the beam shape
- K16.4 impact of treatment parameters or changes to treatment

parameters on dose distribution

K17 the functions and safe use of the megavoltage external beam radiation treatment unit controls, other equipment used in radiotherapy and an awareness of the technical limitations of specific treatment units

K18 the use of photon and electron beams in radiotherapy treatment

K19 care of equipment

K20 equipment capabilities, limitations and user maintenance

K21 efficiency and efficacy of patient immobilisation and positioning devices

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Additional Information

External links

This standard links with the following dimension within the NHS Knowledge and Skills Framework (October 2004):

Dimension: HWB7 Interventions and treatments

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