

PATIENT RADIATION EXPOSURES DURING CARDIAC CATHETERIZATION PROCEDURES

In recent years, several papers have been published which document skin injuries resulting from radiation to which patients are exposed during cardiac catheterization procedures. FDA Advisories recommend that each institution monitor the radiation used during these procedures and develop protocols to allow the estimation of the entrance skin exposure delivered to each patient. At our institution, we have been using two devices to monitor these doses. The Pemnet system uses real-time measurements of generator technique factors as well as x-ray tube angles, source-to-skin distance and radiation mode to calculate the patient entrance skin dose. The dose-area product (DAP) meter uses an ionization chamber to measure the radiation exiting the collimator of the x-ray tube. By multiplying this value by the area of the beam the DAP meter assigns a number which is independent of the distance of the patient from the source of the x-rays. We will present data gathered in our cardiac catheterization laboratories using these two methods. We will also discuss the effects of such complications as the presence of grafts and multiple lesions on entrance skin doses. The overall goal in our program is to deliver the minimum amount of radiation possible to each patient to achieve the success of the procedure. Besides building a database of entrance doses or dose-area products for each type of procedure, we are also providing the cardiologists with a tool to enable them to remember to use radiation only when absolutely necessary.