AbstractID: 1296 Title: Measurement of Dose-Area Product with Gafchromic XR Type R Films

Many x-ray machines of recent design have the capability to provide radiation exposure information in the form of a dose-area product (DAP). This feature is particularly valuable in fluoroscopy guided interventional procedures where radiation exposure may be significant. Gafchromic XR type R film was investigated as an alternative means to obtain such information. Films were placed over x-ray tube housing apertures during interventional procedures. At the completion of a procedure the DAP meter reading was recorded. X-ray exposure of the films produced geometric patterns. The areas of these patterns were measured manually. A calibration curve was used to convert film response to air kerma values. DAP values obtained from films and from the x-ray unit DAP meter were compared over the range of 80 to 750 Gy cm cm. A regression analysis showed an R-squared value of 0.99 and a slope of 1.0, demonstrating excellent agreement of the two methods. Gafchromic XR type R film could therefore be useful for monitoring patient exposure when the x-ray machines lack DAP meters. Furthermore, a dose distribution recorded by the film might also provide more information than the single DAP value provided by electronic means.