

Radiation Exposure to Operators During Biventricular Device Implants

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INTRODUCTION

- Biventricular pacing (BiV) has shown to improve morbidity and mortality in patients with class III/IV CHF.
- The number of BiV devices implanted worldwide continues to increase at an accelerated pace.
- Due to the complexity of BiV implants, the fluoroscopy time can be significant.
- Studies have shown the safety of radiation exposure during various EP procedures, including SVT and lengthy AF ablations.
- Ablations are performed predominately from the groin, increasing the distance the operator stands from the radiation source.
- Theoretically, the amount of radiation exposure during BiV implant can be substantial since the distance from radiation source to operator is significantly shorter than for other EP procedures. This exposure has not been determined.

PURPOSE

- To assess the magnitude of radiation exposure received by operators during BiV device implants.
- To determine exposure safety.

METHODS

- Radiation exposure was measured with standard radiation film badges used at the University of Texas Southwestern in Dallas, Texas.
- Radiation was measured in twenty-one (21) consecutive BiV device implant procedures at all three University of Texas Southwestern affiliated Hospitals (Parkland Memorial, St Paul University and the North Texas VA Hospitals).
- Twelve (12) consecutive ICD implants were measured as controls (only at Parkland). Each operator (fellow and attending physician) wore appropriate, approved radiation safety lead aprons.
- Radiation measurements consisted of deep radiation exposure in millirems (mRem). In addition, shallow and eye radiation exposure were estimated. On average, three procedures were measured per badge set. Each badge set consisted of an investigational collar badge and a similar waist badge (worn under the lead apron). The collar badge measurements were used to estimate total exposure to the operator, while the waist badge was used to measure what actually penetrated the protective lead apron.