INTEGRITY MODULATION OF ELECTRON FLASH IS ACHIEVABLE AND IMPROVES HOMOGENEITY OF PRESCRIBED DOSE WITH PROPER TREATMENT CONSTRAINTS WHILE REDUCING HOT SPOTS FOR CLINICAL PLANS.

METHODS

- Develop Electron Beam model in decimal ElectronRT treatment planning system
- Compare intensity modulated vs unmodulated plans for:
  - Water Phantom
  - Facial Orbital
  - Rib Metastasis

MODEL VALIDATION

![Graphs and images showing comparison of modulated and unmodulated plans for different anatomical regions.]

Hypothetical equation for conformity and homogeneity indices:

\[
CI = \frac{V_{\text{PTV}}}{V_{\text{PTV}}} \times \frac{V_{\text{PTV}}}{V_{\text{PTV}}}
\]

\[
HI = \frac{\text{Mean Dose of PTV}}{D_{\text{Ref}}}
\]

CONCLUSION

- Intensity modulation can maintain UHDR beams with conformal electron beams.
- Treatment constraints instrumental to achieving superior homogeneity and conformity.
- Requires dose validation with intensity modulating applicators.

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