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Abstract

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Spatially Fractionated GRID Radiotherapy: Early Experiences in Indonesia

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Published 03/05/2025

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Categories: Medical Physics, Radiation Oncology
Keywords: spatially fractionated grid radiotherapy

How to cite this abstract
Giselvania A, Chang S X, Gondhowiardjo S (March 05, 2025) Spatially Fractionated GRID Radiotherapy: Early Experiences in Indonesia. Cureus 17(3): a1498

Abstract

Objectives:

Spatially Fractionated Radiotherapy (SFRT) is known for its highly potent immunomodulated response that contributes to its highly effective outcomes. This makes SFRT one of the few promising treatment options for conquering tumors, especially in locally advanced cases. Its simplicity in terms of technology and resources also makes this treatment easily affordable for lower-middle-income countries. This study aims to report our early experiences of using SFGRT for patients with various cancers in our hospital.

Methods:

We analyzed patients with various cancer types who were treated using a commercially available brass GRID collimator (DotDecimal, Sanford FL) in our Radiation Oncology Department, Cipto Mangunkusumo National General Hospital, Jakarta, from January 2020 to August 2024.

Results:

A total of 38 patients with various cancer types were treated using SFGRT, with a median age of 47.5 years old (range 4-68), with the majority being female (63%). The most common diagnosis is liver (21%), breast cancer (18%), and cervical (16%), followed by sarcoma (13%), head and neck cancer (13%), lung (5%) and others (bladder, endometrial, vulva, retinoblastoma and chordoma, each one case) 15%. GRID dose was mostly single 15 Gy (97.4%) followed either by conventional fractionation (2D/3D/IMRT), moderate hypofractionation (IMRT) or stereotactic body radiotherapy (SBRT). All cases were palliative intent aimed at pain relief, bleeding control, or bulky mass reduction. Outcomes are mostly satisfactory with 86% of pain palliation, 77% bleeding control, and 60% mass decreased in size, with 13% of it were being a complete response.

Conclusion(s):

SFRT shows promising results in terms of tumor response, especially for bulky tumors. Research suggests that immunogenic cell death may play a crucial role. Proper utilization of SFRT can improve tumor response. Our experience showed satisfactory treatment results for the majority of the patients, and only a few were found to be resistant. Additionally, no significant toxicities were found in all of our patients.