

# Radiasi Hemostatiks: Kadar Von Willebrand Factor Plasma dan Skala Perdarahan WHO Sebelum dan Sesudah Radiasi pada Perdarahan Akibat Kanker di Departemen Radioterapi RSCM = Hemostatics Irradiation: Level of Von Willebrand Factor Plasma and WHO Bleeding Scale, Before and After Radiation on Cancer Bleeding in Department of Radiotherapy, Cipto Mangunkusumo Hospital

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## Abstrak

[Latar Belakang : Radiasi berperan sebagai salah satu modalitas penatalaksanaan perdarahan pada keganasan. Peranan radiasi sebagai hemostatiks sudah lama digunakan namun masih memerlukan studi lebih lanjut untuk mengevaluasi efektivitasnya, serta ilmu pengetahuan terbaru pada penggunaan parameter biologis dalam penilaiannya. Saat ini di Indonesia masih sedikit publikasi kepustakaan yang memfokuskan tentang radiasi hemostatiks. Penelitian ini bertujuan untuk mengetahui perubahan respon klinis perdarahan berdasarkan skala perdarahan WHO, mengetahui adanya perbedaan rerata kadar von Willebrand Factor (vWF) plasma antara sebelum dan sesudah radiasi, serta mengevaluasi adanya korelasi dari kadar vWF plasma dengan respon penghentian perdarahan menggunakan skala perdarahan WHO pada perdarahan tumor, sebelum dan sesudah diberikan radiasi hemostatiks.

Metodologi : Studi ini menggunakan pre-post study design tanpa pembandingan, dilakukan di Departemen Radioterapi RSCM pada pasien yang mengalami perdarahan akibat kanker yang mendapat terapi radiasi hemostatiks serta memenuhi kriteria inklusi sejak September 2013 sampai dengan Februari 2014.

Pengambilan sampel darah untuk pemeriksaan vWF plasma dan penilaian klinis skala perdarahan WHO dilakukan sebelum dan sesudah radiasi hemostatiks.

Hasil : Dari total 23 subyek terpilih, terdapat 2 pasien yang meninggal karena perdarahan. Nilai keberhasilan terapi radiasi hemostatiks yang dilakukan pada subyek adalah sebesar 91,3%. Radiasi hemostatiks mampu menurunkan skala perdarahan WHO dari median 3 menjadi median 1 sesudah radiasi dengan nilai  $p < 0,001$ . Pemberian radiasi hemostatiks meningkatkan kadar vWF plasma secara bermakna dengan perbedaan rerata 12,38 IU/dL (SD 12,75 IU/dL), nilai  $p = 0,001$ . Terdapat korelasi yang bermakna antara peningkatan kadar vWF plasma sebelum dan sesudah radiasi dengan penurunan skala perdarahan WHO,  $p = 0,019$  ( $R = -0,533$ ).

Kesimpulan : Radiasi hemostatiks terbukti efektif menghentikan perdarahan akibat kanker dan menjadi modalitas pilihan dalam tatalaksana perdarahan akibat kanker. Radiasi mampu menurunkan derajat perdarahan, serta meningkatkan kadar vWF plasma dan terbukti peningkatan vWF plasma berkorelasi bermakna dengan penurunan derajat perdarahan.

.....Backgorund : Radiation is one of the modality to treat cancer bleeding. Hemostatics irradiation is already known while still need further investigation to evaluate its effectiveness, including its biological parameter. Von Willebrand Factor plasma is already known has major role as initiator of the platelets adhesion in hemostatics. Publication of references in hemostatics irradiation is still infrequent. This study aims to investigate the changes of clinical response based on WHO bleeding scale before and after radiation, also to examine the difference level of vWF plasma before and after radiation, and to search correlation between bleeding scale response to vWF plasma level before and after hemostatics irradiation.

**Methods :** This study is pre-post study design without control, held in Department of Radiotherapy Cipto Mangunkusumo National General Hospital, Jakarta in cancer bleeding patients who received hemostatics irradiation according to inclusion criteria, since September 2013-February 2014. Blood samples for vWF examination and clinical scoring for WHO bleeding scale data are taken before and after irradiation.

**Result :** Overall 23 subjects, including 2 patients died because of the bleeding. The effectiveness of hemostatics irradiation is 91,3%. Radiation hemostatics significantly decrease WHO bleeding scale, from median 3 to median 1,  $p < 0,001$ . The hemostatics irradiation significantly elevate the level of vWF plasma, mean differences 12,38 IU/dL (SD 12,75 IU/dL),  $p = 0,001$ . There is also significant correlation between the decrease of WHO bleeding scale and the elevation level of vWF plasma,  $p = 0,019$  ( $R = -0,533$ ).

**Conclusion :** Hemostatics radiation is proven effectively to stop the cancer bleeding and chosen modality in treating the cancer bleeding in malignancy. Radiation is clinically able to degrade the bleeding scale, and to elevate the level of vWF plasma. Radiation is also proven significant corelation between elevation of vWF plasma and decrement of bleeding scale.;**Backgorund :** Radiation is one of the modality to treat cancer bleeding. Hemostatics irradiation is already known while still need further investigation to evaluate its effectiveness, including its biological parameter. Von Willebrand Factor plasma is already known has major role as initiator of the platelets adhesion in hemostatics. Publication of references in hemostatics irradiation is still infrequent. This study aims to investigate the changes of clinical response based on WHO bleeding scale before and after radiation, also to examine the difference level of vWF plasma before and after radiation, and to search correlation between bleeding scale response to vWF plasma level before and after hemostatics irradiation.

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