

**PERBEDAAN NILAI MEAN ARTERIAL PRESSURE (MAP) PADA
PENGUNAAN NILAI MINIMUM ALVEOLAR CONCENTRATION
(MAC) DESFLURANE 1,2 DAN 1,5 INTRA ANESTESI PADA PASIEN
CANCER MAMAE YANG MENJALANI TINDAKAN MODIFIED
RADICAL MASTECTOMY DENGAN ANESTESI UMUM DI RUMAH
SAKIT UMUM DAERAH CILACAP**

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ABSTRAK

Latar Belakang: Stabilitas hemodinamik, khususnya nilai Mean Arterial Pressure (MAP), merupakan salah satu tujuan utama dalam manajemen anestesi umum pada pasien yang menjalani pembedahan kanker payudara (Modified Radical Mastectomy). Desflurane memiliki koefisien partisi darah-gas terendah sehingga induksi dan pemulihan berlangsung cepat, namun peningkatan Minimum Alveolar Concentration (MAC) dapat menimbulkan relaksasi otot polos pembuluh darah perifer yang bersifat dose-dependent, sehingga menurunkan resistensi vaskular sistemik (SVR) dan berdampak pada penurunan MAP. Ketidakstabilan MAP yang berkepanjangan berisiko meningkatkan hipoperfusi organ vital serta berpotensi memengaruhi respons imun dan luaran jangka panjang pasien kanker. Data lokal mengenai pengaruh MAC Desflurane terhadap MAP pada pasien kanker payudara yang menjalani Modified Radical Mastectomy di RSUD Cilacap belum tersedia.

Tujuan: Penelitian ini bertujuan untuk mengetahui perbedaan nilai Mean Arterial Pressure (MAP) antara penggunaan Minimum Alveolar Concentration (MAC) Desflurane 1,2 dan 1,5 intra anestesi pada pasien kanker payudara yang menjalani Modified Radical Mastectomy (MRM) dengan anestesi umum di RSUD Cilacap. **Metode:** Penelitian ini menggunakan desain observasional analitik dengan pendekatan prospektif longitudinal repeated measures. Subjek penelitian adalah 48 pasien kanker payudara yang menjalani Modified Radical Mastectomy (MRM) dengan anestesi umum di RSUD Cilacap, dipilih dengan teknik total sampling dan terbagi menjadi kelompok MAC Desflurane 1,2 (n=24) dan kelompok MAC Desflurane 1,5 (n=24). Variabel yang diamati meliputi nilai MAC Desflurane serta nilai MAP yang diukur setiap 5 menit selama 45 menit fase pemeliharaan (maintenance) intra anestesi, menghasilkan sembilan titik data (T1–T9) untuk setiap responden. Analisis data menggunakan Repeated Measures ANOVA, paired sample t-test, dan independent sample t-test.

Hasil: Hasil penelitian menunjukkan karakteristik dasar kedua kelompok setara ($p>0,05$). Nilai MAP menurun secara signifikan pada kedua kelompok; kelompok MAC 1,2 mengalami penurunan rerata 7,00 mmHg yang signifikan mulai menit ke-15 (T3), sedangkan kelompok MAC 1,5 mengalami penurunan rerata 11,46 mmHg yang signifikan mulai menit ke-10 (T2). Selisih rerata MAP antara kedua kelompok melebar secara konsisten dari 4,92 mmHg pada menit ke-5 hingga 9,38

mmHg pada menit ke-45, dengan nilai $p < 0,05$ pada hampir seluruh titik waktu pengamatan. Tidak ditemukan kejadian hipotensi berat ($\text{MAP} < 65 \text{ mmHg}$) pada kedua kelompok sepanjang periode pengamatan.

Kesimpulan: terdapat perbedaan nilai Mean Arterial Pressure (MAP) yang signifikan antara penggunaan MAC Desflurane 1,2 dan 1,5 intra anestesi pada pasien kanker payudara yang menjalani Modified Radical Mastectomy (MRM) dengan anestesi umum di RSUD Cilacap, di mana MAC 1,5 menyebabkan penurunan MAP yang lebih besar dan lebih cepat dibandingkan MAC 1,2, meskipun keduanya masih berada dalam rentang aman secara klinis.

Kata Kunci: MAC Desflurane, Mean Arterial Pressure, Anestesi Umum, Pasien Kanker Payudara.

**DIFFERENCES IN MEAN ARTERIAL PRESSURE (MAP) VALUES
BETWEEN THE USE OF DESFLURANE MINIMUM ALVEOLAR
CONCENTRATION (MAC) VALUES OF 1.2 AND 1.5 DURING
INTRAOPERATIVE ANESTHESIA IN BREAST CANCER PATIENTS
UNDERGOING MODIFIED RADICAL MASTECTOMY WITH
GENERAL ANESTHESIA AT CILACAP REGIONAL GENERAL
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ABSTRACT

Background: Hemodynamic stability, particularly Mean Arterial Pressure (MAP), is one of the primary goals of general anesthesia management in patients undergoing breast cancer surgery (Modified Radical Mastectomy). Desflurane has the lowest blood-gas partition coefficient, allowing rapid induction and recovery; however, an increase in Minimum Alveolar Concentration (MAC) induces dose-dependent relaxation of peripheral vascular smooth muscle, thereby reducing systemic vascular resistance (SVR) and decreasing MAP. Prolonged hemodynamic instability risks increasing hypoperfusion of vital organs and may affect immune response and long-term outcomes in cancer patients. Local data regarding the effect of Desflurane MAC on MAP in breast cancer patients undergoing Modified Radical Mastectomy at RSUD Cilacap have not been available.

Objective: This study aims to determine the difference in Mean Arterial Pressure (MAP) values between the use of Desflurane Minimum Alveolar Concentration (MAC) 1.2 and

1.5 during intra-anesthesia in breast cancer patients undergoing Modified Radical Mastectomy with general anesthesia at RSUD Cilacap.

Methods: This study employed an analytical observational design with a prospective longitudinal repeated-measures approach. The subjects were 48 breast cancer patients undergoing Modified Radical Mastectomy (MRM) under general anesthesia at RSUD Cilacap, selected through total sampling and divided into a Desflurane MAC 1.2 group (n=24) and a MAC 1.5 group (n=24). Observed variables included the Desflurane MAC value and MAP value, which were recorded every 5 minutes over a 45-minute intra-anesthesia maintenance phase, yielding nine data points (T1–T9) per respondent. Data were analyzed using Repeated Measures ANOVA, paired sample t-test, and independent sample t-test.

Results: The results showed that the baseline characteristics of both groups were comparable ($p > 0.05$). MAP decreased significantly in both groups; the MAC 1.2 group showed a mean decrease of 7.00 mmHg, significant from the 15th minute (T3) onward, while the MAC 1.5 group showed a mean decrease of 11.46 mmHg, significant from the 10th minute (T2) onward. The mean MAP difference between the two groups widened consistently from 4.92 mmHg at the 5th minute to 9.38

mmHg at the 45th minute, with $p < 0.05$ at almost all observation time points. No severe hypotension events (MAP < 65 mmHg) were found in either group throughout the observation period.

Conclusion: there is a significant difference in Mean Arterial Pressure (MAP) values between the use of Desflurane MAC 1.2 and 1.5 during intra-anesthesia in breast cancer patients undergoing Modified Radical Mastectomy with general anesthesia at RSUD Cilacap, with MAC 1.5 causing a greater and faster decrease in MAP than MAC 1.2, although both remained within a clinically safe range.

Keywords: Desflurane MAC, Mean Arterial Pressure, General Anesthesia, Breast Cancer Patients Undergoing Modified Radical Mastectomy.