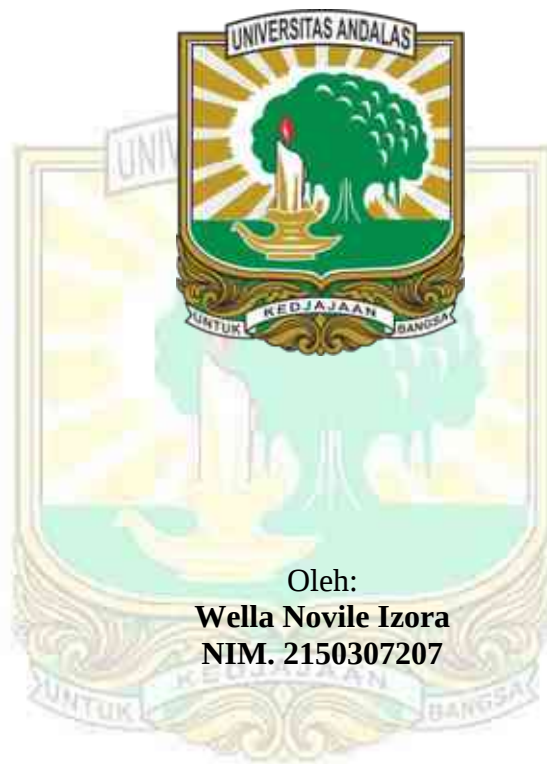


Tesis

**NILAI DIAGNOSTIK CARBOHYDRATE ANTIGEN 19-9 DAN
CARCINOEMBRYONIC ANTIGEN SERUM
PADA KANKER KOLOREKTAL**



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FAKULTAS KEDOKTERAN UNIVERSITAS ANDALAS/
RS M. DJAMIL PADANG
2025**

NILAI DIAGNOSTIK *CARBOHYDRATE ANTIGEN 19-9* DAN *CARCINOEMBRYONIC ANTIGEN* SERUM PADA KANKER KOLOREKTAL

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ABSTRAK

Latar Belakang: Kanker kolorektal merupakan kanker kedua terbanyak pada laki-laki dan keempat terbanyak pada perempuan di Indonesia. Metode diagnostik tahap awal sangat dibutuhkan karena kanker kolorektal sering ditemukan pada tahap yang sudah bermetastasis. Pemeriksaan *Carbohydrate antigen 19-9* (CA 19-9) dan *Carcinoembryonic antigen* (CEA) digunakan sebagai penanda tumor untuk menunjang diagnosis kanker kolorektal yang tidak invasif pada tahap awal. Penelitian ini bertujuan untuk mengetahui nilai diagnostik kombinasi CA 19-9 dan CEA serum pada kanker kolorektal.

Metode: Penelitian analitik dengan rancangan potong lintang pada 45 pasien dengan tumor kolorektal yang melakukan pemeriksaan histopatologi di RS M. Djamil Padang sejak bulan Januari 2024 hingga Agustus 2024. Parameter pemeriksaan adalah kadar CA 19-9 dan CEA. Pemeriksaan CA 19-9 dan CEA menggunakan alat *immunology analyzer* dengan metode *Enzyme linked fluorescence assay* (ELFA). Analisis statistik uji diagnostik diperoleh sensitivitas, spesifisitas, *positive predictive value* (PPV) dan *negative predictive value* (NPV).

Hasil: Rerata usia subjek penelitian adalah 51,71 (12,12) tahun. Median kadar CA 19-9 dan rerata CEA ditemukan lebih tinggi pada kelompok kanker kolorektal dibandingkan kelompok non-kanker kolorektal. Median kadar CA 19-9 pada kanker kolorektal 44,21 (3,37-439,03) U/mL dan kelompok non-kanker kolorektal 10,23 (3,02-69,17) U/mL. Rerata kadar CEA pada kanker kolorektal 51,75 (77,65) ng/mL dan kelompok non-kanker kolorektal 5,52 (7,09) ng/mL. Analisis uji diagnostik kadar CA 19-9 serum diperoleh sensitivitas 60,87%; spesifisitas 86,36%; PPV 82,35% dan NPV 67,86%. Analisis uji diagnostik kadar CEA serum didapatkan sensitivitas 69,57%; spesifisitas 81,82%; PPV 80,0% dan NPV 72,0%. Analisis uji diagnostik pada kombinasi CA 19-9 dan CEA serum didapatkan sensitivitas 86,96%; spesifisitas 81,82%; PPV 83,33% dan NPV 85,71%.

Simpulan: Nilai diagnostik kombinasi penanda tumor CA 19-9 dan CEA serum pada kanker kolorektal lebih baik daripada CA 19-9 serum tunggal atau CEA serum tunggal.

Kata Kunci: *Carbohydrate antigen 19-9*, *Carcinoembryonic antigen*, kanker kolorektal, sensitivitas dan spesifisitas.

DIAGNOSTIC VALUE OF CARBOHYDRATE ANTIGEN 19-9 AND SERUM CARCINOEMBRYONIC ANTIGEN IN COLORECTAL CANCER

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ABSTRACT

Background: Colorectal cancer is the second most common cancer in men and the fourth most common in women in Indonesia. Early stage diagnostic methods are needed as colorectal cancer is often found at a metastasized stage. Carbohydrate antigen 19-9 (CA 19-9) and carcinoembryonic antigen (CEA) examination are used as markers to diagnose colorectal cancer in non-invasively at an early stage. This study aims to determine the diagnostic value of the combination of CA 19-9 and serum CEA in colorectal cancer.

Methods: Analytical study with a cross-sectional design in 45 patients with colorectal tumors who underwent histopathological examination at M. Djamil Hospital Padang from January 2024 to August 2024. Examination parameters were the levels of CA 19-9, CEA and histopathological examination. CA 19-9 and CEA examination using immunology analyzer with Enzyme linked fluorescence assay (ELFA) method. Statistical analysis of diagnostic tests obtained sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV).

Results: The average age of the study subjects was 51,71 (12,12) years. Median CA 19-9 and average CEA levels were found to be higher in the colorectal cancer group compared to the non-cancer group. The median CA 19-9 level in colorectal cancer was 44.21 (3.37-439.03) U/mL and 10.23 (3.0-69.2) U/mL in colorectal non-cancer group. The median CEA level in colorectal cancer was 51.75 (77,6) ng/mL and 5.52 (7,09) ng/mL in colorectal non-cancer group. Diagnostic test analysis of serum CA 19-9 levels obtained a sensitivity of 60.87%, specificity of 86.36%, PPV 82.35% and NPV 67.86%. Diagnostic test analysis of serum CEA levels obtained a sensitivity of 69.57%, specificity of 81.82%, PPV 80.0% and NPV 72.0%. Diagnostic test analysis on the combination of CA 19-9 and serum CEA obtained sensitivity of 86.96%, specificity of 81.82%, PPV 83.33% and NPV 85.71%.

Conclusion: The diagnostic value of combined tumor markers CA 19-9 and serum CEA in colorectal cancer is better than single CA 19-9 or serum CEA.

Keywords: Carbohydrate antigen 19-9, Carcinoembryonic antigen, colorectal cancer, sensitivity and specificity.