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WC 335

Yustinus Maladan, Hana Krismawati, Hotma Martogi Lorensia Hutape, Antonius Oktavian

In silico analysis of V48A dihydropteroate synthase mutation to dapson on *Mycobacterium leprae* from Papua

Health Science Journal of Indonesia 2020;11;70-6

Latar belakang: Lepra merupakan penyakit yang disebabkan oleh *Mycobacterium leprae*. Resistensi obat merupakan salah satu tantangan dalam pemberantasan kusta khususnya di Papua. Adanya mutasi pada gen folP1 penyandi dihydropteroate synthase (DHPS) merupakan dasar untuk deteksi molekuler resistensi dapson pada penyakit lepra. Tujuan penelitian ini adalah mendeteksi mutasi pada gen folP1 *Mycobacterium leprae* dari Papua, Indonesia dan menganalisis pengaruh mutasi tersebut terhadap dapson dengan metode in silico.

Metode: Identifikasi mutasi pada gen folP1 *M. leprae* dilakukan melalui proses Basic Local Alignment Search Tool (BLAST) di gene bank. Analisis efek mutasi dengan menggunakan server Have (y) Our Protein Explained (HOPE). Prediksi binding pocket menggunakan Computed Atlas of Surface Topography of proteins (CASTp). Homologi modeling struktur 3D DHPS menggunakan server Iterative Threading ASSEMBLY Refinement (I-TASSER). Analisis docking dengan menggunakan AutoDock Vina yang terintegrasi dengan aplikasi Python Prescription (PyRx).

Hasil: Hasil sekuensing menunjukkan adanya variasi dalam gen folP1 *M. leprae* yaitu perubahan dari Timin (T) menjadi Sitosin (C) pada nukleotida 143. Residu yang bermutasi (V48A) terletak pada domain yang penting untuk aktivitas protein dan kontak dengan residu di domain lain. Ada kemungkinan bahwa interaksi ini penting untuk fungsi protein secara benar. Mutan V48A tidak banyak mempengaruhi stabilitas dari dihydropteroate synthase *M. leprae*.

Kesimpulan: Berdasarkan analisis molecular docking, mutasi V48A tidak mempengaruhi binding affinity dapson terhadap dihydropteroate synthase *M. leprae*. Hasil ini menunjukkan mutan V48A kemungkinan tetap rentan terhadap dapson. Dengan demikian perlu dilakukan uji in vivo untuk mengkonfirmasi efek mutasi V48A. (Health Science Journal of Indonesia 2020;11(2):70-6)

Kata kunci: *Mycobacterium leprae*, folP1 gene, dihydropteroate synthase, dapson

WC 420

Farida Dwi Handayani, Rahmi Ayu Wijayaningih, Ristiyanto, Muhammad Hussein Gasem, Tri Wibawa

Comparison of DNA extraction methods for molecular identification of pathogenic *Leptospira* in the urine samples

Health Science Journal of Indonesia 2020;11;77-84

Latar belakang: Leptospirosis merupakan zoonosis penting di dunia, yang masih sering terjadi salah diagnosis. Deteksi laboratorium *Leptospira* menjadi tantangan karena bakterimea cukup singkat untuk dideteksi molekuler, namun antibodi juga muncul sangat lambat. Urine dapat menjadi sampel alternatif untuk deteksi PCR pada leptospirosis. Pengerjaan PCR membutuhkan DNA berkualitas dan andal, dan diperoleh dari metode ekstraksi DNA yang baik. Penelitian bertujuan untuk mengetahui metode ekstraksi DNA *Leptospira* terbaik untuk sampel urin, serta mengevaluasi pengaruh waktu penyimpanan dan suhu terhadap kestabilan DNA.

Metode: Penelitian ini menggunakan tiga metode isolasi DNA yang berbeda; berbasis silika dengan spin kolom, kromatografi spin column menggunakan resin sebagai matriks pemisah, dan metode larutan dengan guanidine isothiocyanate. Hasil ekstraksi diperiksa konsentrasi dan kemurniannya. Gen SecY

pada *Leptospira* dideteksi dengan PCR real-time. Pengaruh suhu dan lama penyimpanan DNA juga dilihat.

Hasil: Hasil isolasi DNA menggunakan resin menunjukkan konsentrasi tertinggi (7,94 + 2,11 µg / mL) dan jumlah salinan amplifikasi DNA *Leptospira* tertinggi (50167,92 + 1,19). Suhu penyimpanan pada suhu 4°C, -20°C, dan -80°C dan umur simpan 91 hari tidak berpengaruh terhadap kualitas dan kuantitas DNA *Leptospira* hasil isolasi spike urin.

Kesimpulan: Isolasi DNA menggunakan spin column chromatography dengan resin sebagai matriks separasi memiliki kualitas dan kuantitas terbaik berdasarkan kemurnian dan konsentrasi DNA serta jumlah gen SecY yang teramplifikasi.

Kata kunci: *Leptospira*, Leptospirosis, ekstraksi DNA, sampel urin, penyimpanan sampel.

WJ 752

Rachma Greta Perdana Putri, Sari Eka Pratiwi, Didik Setyo Heriyanto, Danarto, Indwiani Astuti, Nur Arfian, Sofia Mubarika Haryana

Overexpression of MiR-155-5p and increased number of macrophage population in precancerous prostatic disease

Health Science Journal of Indonesia 2020;11;85-91

Latar belakang: Gangguan regulasi mikroRNA(miR) dan inflamasi kronik dapat mengubah tumor menjadi karsinoma dan kanker dengan metastasis melalui perubahan seluler dan genomik. Lesi prekanker memiliki peluang 33,3 persen menjadi kanker. Penelitian ini bertujuan untuk mengkaji peran miR-155- 5p terhadap mRNA SOCS1 dan populasi makrofag terhadap progresivitas penyakit yang berhubungan dengan Benign Prostate Hyperplasia (BPH), High Grade Prostatic Intraepithelial Neoplasia (HGPIN), dan Prostate Adenocarcinoma (PRAD).

Metode: Penelitian ini merupakan penelitian potong lintang dengan 3 kelompok, yaitu BPH,HGPIN, dan PRAD. Sampel jaringan didapatkan dari Tindakan TURP. Ekspresi miR-155 dianalisis menggunakan

qPCR dan dikalkulasi menggunakan metode Livak. Ekspresi mRNA SOCS-1 dianalisis menggunakan reverse transcriptase PCR. Penanda pan makrofag, anti CD-68 monoclonal antibody(MoAb) digunakan untuk mendeteksi populasi makrofag pada jaringan dengan imunohistokimia.

Hasil: Ekspresi miR-155 lebih tinggi pada HGPIN dibandingkan BPH dan PRAD (p=0,14). Ekspresi mRNA SOCS1 pada HGPIN paling rendah diantara ketiga sampel (p=0,96). Terdapat korelasi negative antara miR-155 dan mRNA SOCS1 (p=0,02). Terdapat peningkatan persentase populasi makrofag yang signifikan pada HGPIN (6,03 persen) dibandingkan BPH (0.89 persen) dengan p=0,00.

Kesimpulan: Pada penelitian ini, terdapat perubahan persentase makrofag dan miR-155 pada HGPIN. Variasi ekspresi miR-155 dan persentase populasi makrofag dapat disebabkan karena perubahan epigenetik. Oleh sebab itu, perlu penelitian lebih lanjut untuk memvalidasi hasil tersebut dan memahami kemungkinan menjadi biomarker pada penyakit prekanker pada prostat.

Kata Kunci: Prostatic Intraepithelial Neoplasia, miR-155, Makrofag

WI 160

Sri Nuryani Wahyuningrum, Christina Hari Nawangsih Prihharsanti, Sofia Mubarika Haryana, Ahmad Ghozali, Firly Putri Fardhila

The expression of GLUT-1 and VEGF-A mRNA in the rectal cancer patients with neoadjuvant chemoradiation

Health Science Journal of Indonesia 2020;11;92-9

Latar belakang: Angka kekambuhan dan resistensi pasien kanker rektum mencapai 40 persen. Kondisi tersebut bisa disebabkan karena peningkatan ekspresi GLUT-1 dan VEGF-A, serta mempengaruhi prognosis pasien. Tujuan penelitian ini adalah untuk mengetahui korelasi ekspresi mRNA GLUT-1 dan VEGF-A, serta hubungannya dengan prognosis pasien kanker rektum yang menjalani kemoradiasi.

Metode: Penelitian Kohor ini melibatkan 16 orang pasien kanker rektum lokal stadium II atau

III yang menjalani kemoradiasi di RSUP Kariadi Semarang. Sampel darah intravena diambil 5 mL pada saat sebelum dan sesudah kemoradiasi. Total RNA diisolasi dari 200 µl serum, kemudian dilakukan sintesis cDNA. Ekspresi mRNA GLUT-1 dan VEGF-A dikuantifikasi dengan metode Livak menggunakan reference gene β -actin.

Hasil: Rata-rata ekspresi mRNA GLUT-1 menurun signifikan 2,14 kali ($P=0,044$) dan mRNA VEGF-A menurun 1,9 kali ($P=0,03$). Ekspresi mRNA GLUT-1 dan VEGF-A berkorelasi positif kuat dan signifikan pada saat sebelum ($r=0,6$; $R^2=0,455$; $P=0,013$) dan sesudah kemoradiasi ($r=0,8$; $R^2=0,598$; $P<0,001$). Peningkatan ekspresi mRNA GLUT-1 berhubungan dengan prognosis buruk pasien, dengan resiko 18 kali lebih tinggi ($P=0,036$; $OR=18$, 95% $CI=1,2-261$). Peningkatan ekspresi mRNA VEGF-A tidak berhubungan signifikan dengan prognosis pasien ($P=0,12$; $OR=9$; 95% $CI=0,6-123$).

Kesimpulan: Ekspresi mRNA GLUT-1 dan VEGF-A berkorelasi positif dan saling mempengaruhi satu dengan lainnya. Peningkatan ekspresi mRNA GLUT-1 berhubungan dengan prognosis buruk pasien. Hasil penelitian ini mengindikasikan bahwa ekspresi mRNA GLUT-1 dari sampel darah berpotensi sebagai biomarker prognosis pada pasien kanker rektum yang menjalani kemoradiasi.)

Kata kunci: kanker rektum, kemoradiasi, GLUT-1, VEGF-A, prognosis

WJ 762

Suyatmi Suyatmi, Endang Listyaningsih Suparyanti, Riza Noviertha Pesik

The effect of ethyl acetat fraction of *Caesalpinia sappan L.* wood on PC3 cancer cell line : cell viability and migration study

Health Science Journal of Indonesia 2020;11;100-5

Latar belakang: Tingginya insidensi kanker di Indonesia, termasuk kanker prostat menimbulkan beban ekonomi kesehatan yang tinggi bagi Indonesia. Pengembangan terapi kanker berbasis sumber daya alam lokal dapat membantu meringankan beban negara. Penelitian ini bertujuan untuk mengetahui

potensi aktivitas anti-kanker fraksi ethyl acetat *Caesalpinia sappan L.* terhadap sel line kanker PC3 yang merupakan model in vitro kanker prostat.

Metode: Fraksi ethyl acetat kayu secang (*Caesalpinia sappan L.*) diperoleh melalui proses liquid chromatography. Efek fraksi 9 dari Fraksi ethyl acetat kayu secang terhadap aktivitas anti-proliferasi dan migrasi sel diuji menggunakan desain uji in vitro. Hambatan proliferasi sel diukur dengan metode MTT assay, sedangkan aktivitas migrasi sel diukur dengan metode migration assay

Hasil: Fraksi 9 dari fraksi ethyl acetat kayu secang memperlihatkan hambatan proliferasi sel line kanker PC3 dengan $IC_{50}:14.99\mu\text{g/ml}$. Hasil migration assay menunjukkan pada dosis $10\mu\text{g/ml}$ fraksi 9 menghambat migrasi sel line kanker PC3, sedangkan pada dosis $100\mu\text{g/ml}$ sel line kanker PC3 mati.

Kesimpulan: Fraksi 9 dari fraksi ethyl acetat kayu secang menunjukkan aktifitas anti-proliferasi dan anti-migrasi yang kuat terhadap pertumbuhan sel line kanker PC3 secara in vitro.

Kata kunci: ethyl acetat fraction, *Caesalpinia sappan*, prostate cancer, PC3, migrasi sel

WB 430

Dian Laila Purwaningroom, Dianita Rifqia Putri, Galuh Wening Permatasari

In silico analysis of antihypertensive and hepatotoxicity potential of the methanol extract of n-butanol fraction of cantaloupe (*Cucumis melo var. cantalupensis*)

Health Science Journal of Indonesia 2020;11;106-14

Latar belakang: Hipertensi merupakan faktor risiko utama penyakit kardiovaskular. Orang Indonesia cenderung mengkonsumsi herbal dalam terapi hipertensi dalam mempertahankan kadar tekanan darah seperti buah blewah (*Cucumis melo var. Cantalupensis*). Namun belum diketahui mekanisme kerja buah blewah dalam menurunkan tekanan darah, dan potensi toksisitasnya jika dikonsumsi dalam jangka panjang.

Metode: Penelitian ini menganalisis mekanisme antihipertensi dari buah blewah dan potensi toksiknya melalui pendekatan *in silico*. Sebanyak 200 gram bubuk blewah kering dimaserasi menggunakan metanol absolut, difraksinasi menggunakan *n*-butanol dan disimpan pada suhu 40°C. Uji fitokimia dilakukan dengan metode LC-MS, senyawa bioaktif dari LC-MS ditelusuri hingga SMILESnya di PubChem. SMILES digunakan untuk analisis potensi antihipertensi di PASSonline - Way2Drug. Kelas toksisitas dan potensi hepatotoksitas dianalisis menggunakan ProTox-II. Mekanisme toksisitas senyawa dianalisis menggunakan STITCH dan STRINGdb.

Hasil: Hasil penelitian menunjukkan bahwa setidaknya terdapat 434 jenis senyawa yang terdapat pada ekstrak metanol fraksi *n*-butanol buah blewah (EMFBB). Berdasarkan analisis STITCH dan STRINGdb, EMFBB dapat bekerja dalam menurunkan tekanan darah melalui mekanisme aksi seperti senyawa amlodipine, yang menstabilkan saluran kalsium tipe-L yang terisi tegangan dalam konformasi tidak aktifnya. Dengan demikian, mencegah kontraksi myocyte yang bergantung pada kalsium dan vasokonstriksi. EMFBB mungkin berpotensi hepatotoksik melalui mekanisme kerja senyawa seperti itrakonazol yang menghambat enzim sitokrom P450 yang mempengaruhi gangguan pada sintesis ergosterol, dan efavirenz yang memiliki efek neurotoksik. Penghambatan sitokrom P450 dapat menyebabkan toksisitas obat dan kerusakan hati.

Kesimpulan: EMFBB dapat bekerja dalam menurunkan tekanan darah melalui mekanisme penstabilan saluran kalsium tipe-L yang terisi tegangan dalam konformasi tidak aktifnya. EMFBB mungkin berpotensi hepatotoksik melalui mekanisme penghambatan enzim sitokrom P450.

Kata kunci: *in silico*, antihipertensi, hepatotoksitas, blewah

WA 900

Cicik Opitasari, Rossa Avrina, Anggita Bunga Anggraini

Risk factors of death among children hospitalized with social insurance (BPJS): a cross sectional study using hospital claim data

Health Science Journal of Indonesia 2020;11:115-20

Latar belakang: Angka kematian di rumah sakit merupakan salah satu indikator yang digunakan

untuk mengukur kinerja dan kualitas pelayanan. Tujuan penelitian ini untuk menganalisis faktor risiko kematian pada anak yang dirawat dengan BPJS kesehatan di satu rumah sakit di Jakarta.

Metode: Penelitian potong lintang pada satu rumah sakit pemerintah di Jakarta. Sampel menggunakan semua data klaim pasien BPJS selama periode Januari - Desember 2017. Semua pasien BPJS berusia di bawah 18 tahun yang dirawat dimasukkan dalam analisis. Regresi logistik digunakan untuk menganalisis faktor risiko kematian anak.

Hasil: Dari total 18,941 jumlah pasien BPJS yang dirawat, sebanyak 3689 data anak yang dianalisis. Proporsi angka kematian anak selama satu tahun sebesar 7,3%. Kasus dengan tingkat keparahan derajat II memiliki risiko kematian 11,51 kali lipat [rasio odds suaian (ORa) = 11,51; IK=7,45-17,78; P = 0,000] dibandingkan tingkat keparahan penyakit derajat I, sedangkan kasus dengan tingkat keparahan derajat III berisiko terhadap kematian 33,97 kali lipat (ORa = 33,97; IK=19,93-57,91; P = 0,000). Selain itu, anak yang memiliki indikasi dirawat di ICU meningkatkan risiko kematian 14,21 kali lipat (ORa = 14,21; IK=9,15-22,08; P= 0,000) dibandingkan yang tidak ada indikasi ICU. Kondisi tertentu yang timbul pada periode perinatal meningkatkan risiko kematian anak 7,65 kali lipat (ORa = 7,65 ; IK=1,81-32,35; P = 0,006) dibandingkan penyakit pada sistem muskuloskeletal dan jaringan ikat.

Kesimpulan: Tingkat keparahan penyakit, indikasi ICU dan kondisi tertentu yang timbul pada periode perinatal adalah faktor risiko kematian anak yang paling sering di rumah sakit.

Kata kunci: Faktor risiko, kematian, anak, BPJS

WA 900

Siti Maemun, Nina Mariana, Surya Otto Wijaya, Dina Oktavia, Vivi Lisdawati, Rita Rogayah

Is hypoalbuminemia a predictor marker of mortality?

Health Science Journal of Indonesia 2020;11:121-5

Latar belakang: Hipoalbuminemia pada pasien rawat inap berkaitan dengan prognosis buruk

pasien. Penelitian ini, mengidentifikasi bahwa hipoalbuminemia berat pada awal pasien masuk rawat inap sebagai prediktor andalan penanda laboratorium dalam mortalitas.

Metode: Sebuah studi cross sectional pada pasien dewasa dengan hipoalbuminemia (kadar albumin < 3,5 g / dL) pada pasien rawat inap (usia > 18 tahun) pada periode Januari 2013 - Maret 2018. Kami mengevaluasi penanda prediktor kematian. Multivariat dengan regresi logistik diterapkan dalam penelitian ini.

Hasil: Dari 747 hipoalbuminemia pada pasien rawat inap dengan rata-rata kadar albumin pada awal adalah $2,0 \pm 0,6$ g / dL. Sebagian besar pasien (83,4%) memiliki kadar albumin $\leq 2,5$ g / dL (hipoalbuminemia berat), 16,6 persen memiliki > 2,5 g / dL (hipoalbuminemia ringan-sedang). Kondisi yang mendasari pasien adalah infeksi HIV / AIDS (26,9%) dan sepsis (26,6%). Proporsi multiple komorbiditas pada kelompok hipoalbuminemia berat adalah 55,1 persen Pada kelompok hipoalbuminemia berat terutama untuk kadar albumin 2,01 - 2,5 g / dL, angka mortalitas adalah 28,3 persen. Berdasarkan model regresi logistik akhir, faktor risiko kematian meliputi kadar albumin pada awal dan lama rawat pasien. Mortalitas lebih tinggi pada pasien dengan hipoalbuminemia berat (rasio odds yang disesuaikan 2,91, 95% CI 1,88- 4,50) dibandingkan pasien dengan hipoalbuminemia ringan-sedang.

Kesimpulan: Hipoalbuminemia berat pada awal pasien rawat inap sebagai prediktor penanda kematian di rumah sakit.

Kata kunci: hipoalbuminemia, pasien rawat inap, mortalitas

QV 253

I Gede Gita Sastrawan, Jordaniel Setiabudi, Ni Putu Gita Raditya Sanjiwani, Ni Komang Vina Indriyani, Dewa Ayu Agus Sri Laksemi

Risk factors of soil transmitted helminth infection among primary school students

Health Science Journal of Indonesia 2020;11:126-32

Latar belakang: Infeksi kronis dari soil transmitted helminth (STH) dapat menyebabkan gangguan

gizi, pertumbuhan dan kognitif pada anak. Untuk mengurangi dampak infeksi STH, diperlukan identifikasi faktor risiko. Penelitian ini bertujuan untuk mengidentifikasi faktor risiko yang berhubungan dengan infeksi STH pada siswa sekolah dasar di Desa Seraya Timur, Karangasem, Bali.

Metode: Penelitian ini menggunakan desain potong lintang dengan mengambil total sampel. Penelitian dilaksanakan pada bulan Januari 2020. Data primer mengenai faktor-faktor risiko infeksi STH dikumpulkan dengan menggunakan kuesioner. Diagnosis infeksi STH dilakukan dengan pemeriksaan tinja dengan metode Kato-Katz. Analisis data menggunakan uji chi-square untuk menentukan faktor risiko yang berhubungan dengan infeksi STH.

Hasil: Sebanyak 83 siswa yang berusia 6-12 tahun berpartisipasi dalam penelitian ini. Terdapat 9 siswa (10.84%) yang terinfeksi STH dengan intensitas infeksi ringan. Sebanyak 55.56% terinfeksi *Trichuris trichiura*, 33.33% terinfeksi *Ascaris lumbricoides* dan 11.11% terinfeksi cacing tambang. Terdapat beberapa faktor risiko yang memiliki hubungan bermakna dengan infeksi STH diantaranya adalah sering bermain tanah (OR=6.86; 95%CI 1.326-35.494), bermain tanpa alas kaki (OR=10.5; 95%CI 1.249-88.278) tidak mencuci tangan setelah bermain tanah (OR=9.450; 95%CI 1.809-49.358) dan tidak memotong kuku secara rutin (OR=6.462; 95%CI 1.250-33.388). Pemberian obat cacing setiap enam bulan mampu memberikan efek proteksi terhadap infeksi STH (OR=0.085; 95%CI 0.016-0.449).

Kesimpulan: Kebersihan diri menjadi faktor risiko yang berhubungan dengan infeksi STH. Direkomendasikan untuk meningkatkan promosi kesehatan terkait kebersihan diri disamping pemberian obat cacing setiap enam bulan.

Kata kunci: Faktor risiko, infeksi STH, anak sekolah dasar

WP 322

Kristivani Br Ginting, Muhammad Rizki Yaznil, M Oky Prabudi, Lili Rahmawati

Quality of life among ovarian cancer survivors in Haji Adam Malik General Hospital Medan, Indonesia

Health Science Journal of Indonesia 2020;11:133-97

Latar belakang: Kanker ovarium memiliki angka mortalitas yang cukup tinggi dikarenakan gejalanya yang tidak spesifik, sering ditemukan pada stadium lanjut, dan belum adanya metode deteksi dini yang sudah terbukti. Untuk menilai keberhasilan terapi penyintas kanker ovarium, tidak hanya dinilai dari aspek klinis tetapi juga dinilai dari kualitas hidup penyintas kanker ovarium yang penilaiannya berdasarkan skala fungsional dan skala gejala dalam kuesioner EORTC QLQ C30 dan EORTC QLQ OV28.

Metode: Penelitian ini menggunakan desain penelitian cross sectional, menggunakan data primer dari hasil wawancara dengan kuesioner EORTC QLQ C30 dan EORTC QLQ OV28 serta data sekunder yang berasal dari rekam medik di RSUP Haji Adam Malik Medan tahun 2017 - 2018. Sampel penelitian dipilih dengan metode total sampling dari seluruh data rekam medik yang memenuhi kriteria penelitian.

Hasil: Hasil penelitian ini didapatkan kualitas hidup global penyintas kanker ovarium 89.36% adalah baik, dan 10.64% adalah sedang serta tidak ada yang memiliki kualitas hidup buruk. Namun, didapatkan adanya gangguan pada skala fungsional berupa: fungsi emosional, fungsi kognitif, fungsi seksual, dan sikap terhadap penyakit, serta adanya permasalahan pada skala gejala berupa: kelelahan, nyeri, neuropati perifer, dan gejala menopause. Didapatkan juga tidak ada hubungan karakteristik usia, jenis histopatologis, stadium, lama terapi dengan kualitas hidup penyintas kanker ovarium, namun terdapat hubungan antara jenis terapi dengan kualitas hidup penyintas kanker ovarium.

Kesimpulan: Kualitas hidup penyintas kanker ovarium secara global adalah baik.

Kata kunci: Kualitas Hidup, Penyintas Kanker Ovarium, EORTC QLQ C-30, EORTC QLQ OV-28

QW 168.5.C8

Ni Ketut Aryastami, Harimat Hendarwan, Vivi Setiawaty, Amir Su'udi, Uly Adhie Mulyani, Made Dewi Susilawati, Syachroni, Nelly Puspendari, Agus Suwandono

Laboratory preparedness to support the Covid-19 pandemic respond in Indonesia

Health Science Journal of Indonesia 2020;11:140-6

Latar belakang: Penyakit jenis baru COVID-19 yang disebabkan oleh virus corona menjadi sebuah pandemic di akhir tahun 2019. Kota Wuhan (China) merupakan lokasi pertama terdeteksinya kasus COVID-19. Tanpa adanya kecurigaan apapun penyakit ini dengan cepatnya menyebar ke seluruh dunia mengikuti alur mobilitas manusia. Dalam kondisi tersebut sistem kesehatan di setiap negara tampak kelabakan khususnya dalam pengendalian transmisi penyakit. Studi ini ingin mengidentifikasi kesiapan jejaring laboratorium kesehatan di Indonesia.

Metode: Penilaian cepat dilakukan terhadap ketersediaan dan kesiapan laboratorium dalam penanganan pandemi Covid-19. Pengumpulan data dilakukan melalui pengisian questioner yang dikirim secara elektronik. Waktu pelaksanaan adalah minggu ketiga dan keempat, Maret 2020. Terdapat 44 laboratorium jejaring laboratorium dibawah Kementerian Kesehatan yang menjadi subjek penelitian, dan sebanyak 33 yang merespon secara lengkap Variabel ketersediaan, kecukupan dan kebutuhan bahan dan alat.

Hasil: Jejaring laboratorium kesehatan dibawah Kementerian Kesehatan sudah terbentuk sejak tahun 2009. Dengan terjadinya pandemic COVID-19 Surat Keputusan Menteri Kesehatan telah direvisi hingga dua kali agar dapat meningkatkan kapasitas dan memperluas jejaring ke seluruh wilayah NKRI. Hasil studi menunjukkan, laboratorium jejaring dibawah Kementerian Kesehatan belum siap dalam menghadapi pandemic COVID-19. Dua jenis laboratorium jejaring yaitu laboratorium surveillans maupun laboratorium diagnostic memiliki kondisi yang sama. Ketersediaan bahan dan alat laboratorium standar masih tergolong rata-rata, bahkan dari sisi kecukupannya masih jauh dibawah kapasitas kebutuhan dalam penanganan specimen COVID-19. Kondisi yang sama juga tampak untuk bahan pendukung laboratorium termasuk alat pelindung diri untuk petugas.

Kesimpulan: Kesiapan laboratorium sebagai bagian dari system kesehatan dalam kondisi pandemic masih lemah. Keberadaan alat penunjang diagnose khususnya untuk penyakit menular harus dilengkapi sesuai dengann type laboratorium. Pandemi COVID-19 menjadi alarm dalam menghadapi era baru dan antisipasi masalah dimasa yang akan datang.

Kata kunci: Kesiapan laboratorium, COVID-19, Indonesia

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WC 335

Yustinus Maladan, Hana Krismawati, Hotma Martogi Lorensia Hutape, Antonius Oktavian

In silico analysis of V48A dihydropteroate synthase mutation to dapsons on *Mycobacterium leprae* from Papua

Health Science Journal of Indonesia 2020;11;70-6

Background: Leprosy is a disease caused by *Mycobacterium leprae*. Drug resistance is one of the challenges in leprosy elimination especially in Papua. The presence of mutations in *folP1* gene that encode dihydropteroate synthase (DHPS) was considered as the exclusive basis for molecular detection of dapsons resistance in leprosy. The objective of this study was to detect mutations in the *folP1* gene of *Mycobacterium leprae* from Papua, Indonesia and to analyze the effect of these mutations on dapsons using the in-silico method.

Methods: Identification of mutations in the *folP1* *M. leprae* gene is carried out through the Basic Local Alignment Search Tool (BLAST) process in the gene bank. The analysis of the effects of mutations using the Have (y)Our Protein Explained (HOPE) server. Bindings pocket prediction is done using the Computed Atlas of Surface Topography of proteins (CASTp). Homology modeling 3D structure of DHPS using the Iterative Threading ASSEMBly Refinement (I-TASSER) server. Docking analysis was performed using AutoDock Vina which is integrated with the Python Prescription (PyRx) application.

Results: The sequencing results showed a variation in the *folP1* *M. leprae* gene, namely a change from thymine (T) to cytosine (C) in nucleotide 143. The mutated residue (V48A) is in a domain that is essential for the activity of the protein and in contact with residues in another domain. It is possible that

this interaction is important for the correct function of the protein. V48A mutants did not significantly affect the stability of DHPS *M. leprae*.

Conclusion: Based on molecular docking analysis, this mutation does not affect binding affinity dapsons against *M. leprae* dihydropteroate synthase. These results indicate that the V48A mutant is likely to remain susceptible to dapsons. Thus, it is necessary to do an in vivo test to confirm the effect of the V48A mutation.

Keywords: *Mycobacterium leprae*, *folP1* gene, dihydropteroate synthase, dapsons

WC 420

Farida Dwi Handayani, Rahmi Ayu Wijayaningih, Ristiyanto, Muhammad Hussein Gasem, Tri Wibawa

Comparison of DNA extraction methods for molecular identification of pathogenic *Leptospira* in the urine samples

Health Science Journal of Indonesia 2020;11;77-84

Background: Leptospirosis is a worldwide zoonotic disease, which is still often misdiagnosed. Laboratory detection of *Leptospira* is challenging since the bacteraemia is quite short for molecular detection, however, the rise of the antibody is late to post the infection. Urine can be a potential alternative sample for PCR detection in leptospirosis. The PCR method requires a reliable DNA template, which is obtained from good DNA extracting methods. The study aimed to determine the best method of extraction *Leptospira* DNA from the urine sample, as well as evaluating the effect of time storage and temperature for its DNA stability.

Methods: This study was utilizing three different DNA isolation methods; silica based with spin

column, spin column chromatography using resin as separation matrix, and solution method with guanidine isothiocyanate. The yields were examined for its concentration and purity. *Leptospira*'s SecY gene was detected with real-time PCR. The influences of storage temperature and the life time of the DNA were also studied.

Results: The yield of DNA isolation using resin showed the highest concentration (7.94 ± 2.11 µg/mL) and highest *Leptospira* DNA amplification copy number (50167.92 ± 1.19). Storage temperature at 4°C, -20°C, and -80°C and life time of 91 days did not have any effect on the quality and quantity of *Leptospira* DNA isolated from spiked urine.

Conclusions: DNA isolation using spin column chromatography with resin as separation matrix has the best quality and quantity based on the purity and concentration of DNA and the higher number of amplified SecY gene.

Keywords: *Leptospira*, Leptospirosis, DNA extraction, urine sample, sample storage.

WJ 752

Rachma Greta Perdana Putri, Sari Eka Pratiwi, Didik Setyo Heriyanto, Danarto, Indwiani Astuti, Nur Arfian, Sofia Mubarika Haryana

Overexpression of MiR-155-5p and increased number of macrophage population in precancerous prostatic disease

Health Science Journal of Indonesia 2020;11;85-91

Background: Impaired microRNA(miR) regulation and chronic inflammation could transform tumors into carcinoma and cancer by metastasis through cellular and genomic changes. Precancerous lesions have a 33.3 percent chance of becoming cancerous. This study investigated the role of miR-155 related to SOCS1 mRNA and macrophage population in disease progression associated with Benign Prostate Hyperplasia (BPH), High-Grade Prostatic Intraepithelial Neoplasia (HGPIN), and Prostate Adenocarcinoma (PRAD).

Methods: This was a cross-sectional study using three groups of samples, namely BPH, HGPIN, and

PRAD. Tissue samples were obtained from TURP Action. The expression of miR-155 was analyzed using real-time qPCR and calculated using the Livak method. The expression of SOCS1 mRNA was analyzed using reverse transcriptase PCR. The macrophage pan-marker, anti-CD68 monoclonal antibody (MoAb), was used to detect macrophage population in tissues by immunohistochemistry.

Results: The expression of miR-155 was higher in HGPIN than BPH and PRAD ($p=0.14$). The expression of SOCS1 mRNA in HGPIN was the lowest among the three samples ($p=0.96$). There was a negative correlation between miR-155 and SOCS1 mRNA ($p=0.02$). There was a significant increase in the percentage of the macrophage population in HGPIN (6.03 percent) compared to BPH (0.89 percent) with $p=0.00$.

Conclusion: In this study, there were changes in the percentage of macrophage and miR-155 in HGPIN. The variation in miR-155 expression and the percentage of the macrophage may be caused by epigenetic changes. Therefore, further research is needed to validate these results and understand the possibility of being a biomarker in precancerous disease of the prostate.

Keywords: Prostatic Intraepithelial Neoplasia, miR-155, Macrophage

WI 160

Sri Nuryani Wahyuningrum, Christina Hari Nawangsih Priharsanti, Sofia Mubarika Haryana, Ahmad Ghozali, Firly Putri Fardhila

The expression of GLUT-1 and VEGF-A mRNA in the rectal cancer patients with neoadjuvant chemoradiation

Health Science Journal of Indonesia 2020;11;92-9

Background: Rectal cancer patients have 40 percent risk of recurrence and resistance, which is triggered by increasing in GLUT-1 and VEGF-A mRNA expression. This condition associate with the patients prognosis. This study aimed to determine the correlation between GLUT-1 and VEGF-A mRNA expression, and analyze its association with the rectal cancer patients prognosis who received chemoradiation.

Methods: This was a Cohort study involving 16 rectal cancer patients with stage II or III undergoing chemoradiation at Kariadi Hospital Semarang. Five milliliters of intravenous blood samples were taken before and after chemoradiation. Total RNA was isolated from 200 µl of blood serum, followed by cDNA synthesis. GLUT-1 and VEGF-A mRNA expression was quantified by the Livak method using β-actin as a reference gene.

Results: GLUT-1 and VEGF-A mRNA expression decreased significantly 2.14 times ($P=0,044$) and 1,9 times ($P=0,03$), respectively. Expression of GLUT-1 and VEGF-A mRNA have a significant and strong positive correlation at before ($r=0,6$; $R^2=0,455$; $P=0,013$) and after chemoradiation ($r=0,8$; $R^2=0,598$; $P<0,001$). GLUT-1 mRNA expression enhancement significantly associate with poor prognosis and risk 18 times of worse prognosis ($P=0,036$; $OR=18$, 95% $CI=1,2-261$). VEGF-A mRNA expression did not associate with patient prognosis ($P=0,12$; $OR=9$; 95% $CI=0,6-123$).

Conclusion: Expression of GLUT-1 and VEGF-A mRNA have a significant and strong positive correlation. GLUT-1 mRNA expression enhancement significantly associate with the poor prognosis of the rectal cancer patients. Our finding suggests that GLUT-1 mRNA expression from blood sample was potential as a biomarker to predict rectal cancer patient prognosis who received chemoradiation.

Keywords: rectal cancer, chemoradiotherapy, GLUT-1, VEGF-A, prognosis

WJ 762

Suyatmi Suyatmi, Endang Listyaningsih Suparyanti, Riza Novierta Pesik

The effect of ethyl acetat fraction of *Caesalpinia sappan* L. wood on PC3 cancer cell line: cell viability and migration study

Health Science Journal of Indonesia 2020;11;100-5

Background: The high incidence of cancer, including prostate cancer, in Indonesia create a high burden on health economic cost. Development of cancer therapy based on local natural resources

may help the country to alleviate the burden. This research aimed to find out the potency of selected compound of ethyl acetate fractions of *Caesalpinia sappan* as anti-cancer by using PC3 cancer cell line as an in vitro model of prostate cancer.

Methods: Ethyl acetate fraction of *Caesalpinia sappan* L. heartwood was prepared using a liquid chromatography method. The effect of ethyl acetate fraction 9 on anti-proliferative and cell migration activities was assessed using MTT assay and migration assay.

Results: Fraction-9 of ethyl acetate fraction of *Caesalpinia sappan* L. wood showed inhibition of PC3 cancer cell line proliferation. The IC50 of the fraction was 14.99µg/ml. The migration assay showed inhibition of cell migration on dose 10µg/ml compared to the 0 doses, while most of the cells cultured was dead when treated with 100µg/ml fraction 9.

Conclusion: Ethyl acetate fraction 9 of *Caesalpinia sappan* L. heartwood possibly has anti-cancer properties based on its anti-proliferative and anti-migration activities against PC3 cancer cell line.

Keyword: ethyl acetate fraction, *Caesalpinia sappan*, prostate cancer, PC3, cell migration

WB 430

Dian Laila Purwaningroom, Dianita Rifqia Putri, Galuh Wening Permatasari

In silico analysis of antihypertensive and hepatotoxicity potential of the methanol extract of n-butanol fraction of cantaloupe (*Cucumis melo* var. *cantalupensis*)

Health Science Journal of Indonesia 2020;11;106-14

Background: Hypertension is a major risk factor in cardiovascular disease. Indonesian people tend to consume herbal medicine to maintain hypertension therapy, i.e cantaloupe (*Cucumis melo* var. *cantalupensis*). But it is not yet known the mechanism of action of cantaloupe in lowering blood pressure, and toxicity potential if it's consumed in the long term.

Methods: This study analyzed the antihypertensive mechanism of cantaloupe and its toxic potential through the *in silico* approach. A total of 200 grams of dried cantaloupe powder was maserated using absolute methanol, fractionated using n-butanol and stored at 4°C. The phytochemical test was done by the LC-MS method, the bioactive compounds from LC-MS were traced to their SMILES in the PubChem. SMILES was used for the analysis of the antihypertensive potential in the PASSonline – Way2Drug. The toxicity class and hepatotoxicity potential was analysed using ProTox- II. The mechanism of compounds toxicity was analysed using STITCH and STRINGdb.

Results: The results showed that at least 434 types of compounds were shown in the methanol extract of n-butanol fraction of cantaloupe (MEBFC). Based of the STITCH and STRINGdb analysis, MEBFC may work in lowering blood pressure through the action mechanism of the amlodipine compound-like, which stabilizes voltage-gated L-type calcium channels in an inactive conformation, thus, prevents calcium-dependent myocyte contraction and vasoconstriction. The MEBFC may potentially hepatotoxic through the action mechanism of itraconazole compound-like which inhibits cytochrome P450-dependent enzymes that affect the impairment of ergosterol synthesis, and efavirenz which has neurotoxic effects. The inhibition of cytochrome P450 may cause drug toxicity and liver damage.

Conclusion: MEBFC may work in lowering blood pressure through the action mechanism which stabilizes voltage-gated L-type calcium channels in an inactive conformation. MEBFC may potentially hepatotoxic through the action mechanism which inhibits cytochrome P450-dependent enzymes.

Keywords: *in silico*, antihypertensive, hepatotoxicity, cantaloupe

WA 900

Cicih Opitasari, Rossa Avrina, Anggita Bunga Anggraini

Risk factors of death among children hospitalized with social insurance (BPJS): a cross sectional study using hospital claim data

Health Science Journal of Indonesia 2020;11:115-20

Background: Hospital death rate is one of the indicators used to measure hospital performance and quality of care, especially the overall hospital death rate. This study aims to analyze the risk factors of death among children hospitalized with social insurance (BPJS) in one hospital in Jakarta.

Method: This was a cross-sectional study conducted in one government hospital in Jakarta. The sample was all individual claim data of BPJS patients who were hospitalized during the period of January to December 2017. All BPJS patients aged below 18 years admitted into the pediatric wards were included in the analysis. The logistic regression was used to analyze the risks of children death

Results: A total of 18.941 BPJS inpatients in the hospital was identified, out of the 3689 met the inclusion criteria. The proportion of death in children during one year was 7.3%. Illness severity level II had 11.51-fold [adjusted odds ratio (ORa)=11.51; CI=7.45-17.78; P=0.000] meanwhile severity level III had 33.97-fold higher risk of children death (ORa=33.97; CI=19.93-57.91; P=0.000) compared to children with severity level I. Children who had ICU indicator increase risk of children death at 14.21-fold (ORa=14.21; IK=9.15-22.08; P= 0.000) compared to those who did not have. Furthermore the risk of children death in certain conditions originating in the perinatal period increases by 7.65-fold (ORa=7.65; IK=1.81-32.35; P=0.006) compared to diseases of the musculoskeletal system and connective tissue.

Conclusion: Illness severity level, ICU indicator and diseases in certain conditions originating in the perinatal period are the most common risk factors for children death in the hospital.

Keywords: Risk factors, death, children, BPJS

WA 900

Siti Maemun, Nina Mariana, Surya Otto Wijaya, Dina Oktavia, Vivi Lisdawati, Rita Rogayah

Is hypoalbuminemia a predictor marker of mortality?

Health Science Journal of Indonesia 2020;11:121-5

Background: Hypoalbuminemia in hospitalized patients has been associated with poor prognosis. In this study, we attempted to identify that severe hypoalbuminemia at baseline in hospitalized patients is a reliable predictor of laboratory marker for mortality.

Methods: A cross sectional study on adults of hypoalbuminemia (albumin level < 3.5 g/dL) in hospitalized patients (aged > 18 years old) in period January 2013 - March 2018. We evaluated the predictor marker of mortality. Multivariate with the logistic regression was applied in this study.

Result: Of the 747 hypoalbuminemia in hospitalized patients with the mean albumin level at baseline was 2.0 ± 0.6 g/dL. Most patients (83.4 %) had less than or equal to 2.5 g/dL albumin level (severe hypoalbuminemia), 16.6 percent had over 2.5 g/dL (mild-moderate hypoalbuminemia). The underlying condition of patients was HIV/AIDS infection (26.9%) and sepsis (26.6 %). The proportion of multiple comorbidities in the severe hypoalbuminemia group was 55.1percent. In the severe hypoalbuminemia group especially for 2.01 – 2.5 g/dL albumin level, the mortality rate was 28.3 percent. Based on the final logistic regression model, known risk factors of mortality include albumin level at baseline and length of stay. Mortality was higher among patients with severe hypoalbuminemia (adjusted odds ratio 2.91, 95 % CI 1.88-4.50) than patients with mild-moderate hypoalbuminemia.

Conclusion: Severe hypoalbuminemia at baseline in the hospitalized patients was a predictor laboratory marker of hospital mortality.

Keywords: hypoalbuminemia, hospitalized patients, mortality

QV 253

I Gede Gita Sastrawan, Jordaniel Setiabudi, Ni Putu Gita Raditya Sanjiwani, Ni Komang Vina Indriyani, Dewa Ayu Agus Sri Laksemi

Risk factors of soil transmitted helminth infection among primary school students

Health Science Journal of Indonesia 2020;11:126-32

Background: Chronic soil transmitted helminth (STH) infection might cause nutritional, growth and cognitive impairment in children. Identifying the risk factors of STH infection is crucially needed to minimize the infection effects. This study aimed to identify risk factors associated with STH infections among primary school students in Seraya Timur Village, Karangasem, Bali.

Methods: This study used a cross-sectional design with a total sampling method. The study was conducted in January 2020. Risk factors data were collected using a questionnaire. The diagnosis of STH infection was done by stool examination with the Kato-Katz method. The chi-square test was used to determine the risk factors associated with STH infection.

Results: 83 students with ages ranging from 6-12 years participated in this study. There were 9 students (10.84%) whose infected with mild infection of STH. 55.56% of students were infected by *Trichuris trichiura*, 33.33% were *Ascaris lumbricoides* infections and 11.11% were hookworm infections. There were several risk factors that significantly associated with STH infection including ground's playing (OR=6.86; 95%CI 1.326-35.494), barefoot (OR=10.5; 95%CI 1.249-88.278), did not wash hands after playing soil (OR=9.450; 95%CI 1.809-49.358) and did not routinely cut their nails (OR=6.462; 95%CI 1.250-33.388). Deworming every six months could provide a protective effect against STH infection (OR=0.085; 95%CI 0.016-0.449).

Conclusion: Personal hygiene is a risk factor associated with STH infection. It is recommended to increase personal hygiene promotion besides dewormed every six months.

Keywords: Risk factors, STH infection, primary school students

WP 322

Kristivani Br Ginting, Muhammad Rizki Yaznil, M Oky Prabudi, Lili Rahmawati

Quality of life among ovarian cancer survivors in Haji Adam Malik General Hospital Medan, Indonesia

Health Science Journal of Indonesia 2020;11:133-97

Background: Ovarian cancer has a high mortality rate due to nonspecific symptoms, often found at an advanced stage, and also the absence of proven early detection methods. To assess the success of ovarian cancer survivors therapy, it is not only assessed from the clinical aspect but also from the quality of life of ovarian cancer survivors which is based on the functional and symptom scale in the EORTC QLQ C30 and EORTC QLQ OV28 questionnaires.

Methods: This study used a cross sectional study design, using primary data from interviews with the survivors based on the questionnaire EORTC QLQ C30 and EORTC QLQ OV28 as well as secondary data derived from medical records at Haji Adam Malik General Hospital Medan in 2017 - 2018. The research sample was used with a total sampling method from all medical record data that fulfill the research criteria.

Result: The quality of life of ovarian cancer survivors is generally good (89.36%), meanwhile the rest is moderate (10.64%) without the poor quality of life. However, there are disorders on the functional scale in the form of emotional function, cognitive function, sexual function, and attitude toward disease. Likewise on the scale of symptoms, there are problems including: fatigue, pain, peripheral neuropathy, and menopausal symptoms.

Conclusion: The quality of life of ovarian cancer survivors globally is good.

Keywords: Quality of Life, Ovarian Cancer Survivors, EORTC QLQ C-30, EORTC QLQ OV-28

QW 168.5.C8

Ni Ketut Aryastami, Harimat Hendarwan, Vivi Setiawaty, Amir Su'udi, Ully Adhie Mulyani, Made Dewi Susilawati, Syachroni, Nelly Puspendari, Agus Suwandono

Laboratory preparedness to support the Covid-19 pandemic respond in Indonesia

Health Science Journal of Indonesia 2020;11:140-6

Background: A novel coronavirus disease called COVID-19 has become pandemic in late 2019. Wuhan City was the first place detected as the source of the pandemic. Without suspicion, it spreads over the world, along with human mobility. In such a condition, every country seems quite stuttering to prepare its health system to prevent its people from the possible transmission. This study aimed to describe the preparedness of the networking laboratory in Indonesia.

Methods: We conducted a rapid assessment of laboratory availability and preparedness to respond to the Covid-19 pandemic. We held the data collection on the third and fourth week of March 2020 by sending an electronic questionnaire to all 44 networking laboratories under the Ministry of Health structure. The variables assessed in this study were the availability and the requirements of the Covid-19 related laboratory's substances, including reagents and other equipment types.

Results: The Ministry of Health established the networking laboratory in 2009, but due to the COVID-19 pandemic, it has renewed twice to enhance and expand the laboratory capacities over the country. Our studies showed preparedness among networking laboratories in Indonesia regarding this new emerging COVID-19 condition was quite devastating. Both surveillance and diagnostic laboratories have a similar situation. The availability of their primary materials was mediocre, but the adequacy was far beyond the capacity in handling the COVID-19 specimen. We found a similar case in the laboratory, supporting materials, and personal protective equipment (PPE).

Conclusion: Laboratory preparedness during initial period of time of the COVID-19 pandemic as part of the health system is still weak. The availability of the necessary equipment, supporting materials, and personal protective equipment are far beyond the requirements. The COVID-19 has alarmed the laboratory and the whole

health system in Indonesia into a new era with better future preparedness.

Keywords: laboratory preparedness, COVID-19, Indonesia