



Report Information from ProQuest

29 September 2023 06:24

DAFTAR ISI

1. Novel PKD1 Mutations in Patients with Autosomal Dominant Polycystic Kidney Disease.....	1
2. CRISPR-Based Approaches for Efficient and Accurate Detection of SARS-CoV-2.....	1
3. Effects of Cell-Derived Microparticles on Immune Cells and Potential Implications in Clinical Medicine.....	2
4. Potential Use of Antigen-Based Rapid Test for SARS-CoV-2 in Respiratory Specimens in Low-Resource Settings in Egypt for Symptomatic Patients and High-Risk Contacts.....	3
5. Acute Hemolytic Transfusion Reaction Due to Pooled Platelets: A Rare but Serious Adverse Event.....	4
6. SBAR as a Standardized Communication Tool for Medical Laboratory Science Students.....	4
7. Cell-Derived Microparticles in Blood Products from Thalassemic Blood Donors.....	5
8. How Reliable Is Automated Urinalysis in Acute Kidney Injury?.....	6
9. Corrigendum to: Comparison of Nucleic Acid Amplification and IgM Tests for the Diagnosis of Mycoplasma pneumoniae Infection in Children During a Recent Korean Outbreak.....	7
10. Absolute Lymphocytes, Ferritin, C-Reactive Protein, and Lactate Dehydrogenase Predict Early Invasive Ventilation in Patients With COVID-19.....	7
11. Neurogranin as a Novel Biomarker in Alzheimer’s Disease.....	8
12. Comparison of Nucleic Acid Amplification and IgM Tests for the Diagnosis of Mycoplasma pneumoniae Infection in Children During a Recent Korean Outbreak.....	9
13. Gonorrhea and Chlamydia Specimen Positivity Rate by Polymerase Chain Reaction at a Regional Veteran Affairs Medical Center.....	9
14. Criticality of In-House Preparation of Viral Transport Medium in Times of Shortage During COVID-19 Pandemic.....	10
15. Variation in LOD Across SARS-CoV-2 Assay Systems: Need for Standardization.....	11
16. The Utility of Elevated Serum Lactate Dehydrogenase in Current Clinical Practice.....	12
17. Machine Learning Prediction of SARS-CoV-2 Polymerase Chain Reaction Results with Routine Blood Tests.....	13
18. ABL Kinase Domain Mutations in Iranian Chronic Myeloid Leukemia Patients with Resistance to Tyrosine Kinase Inhibitors.....	14
19. Reporting Sysmex XN Absolute Neutrophil Count in Samples with Leukocyte Analyzer Flagging.....	14
20. Effect of Addition of WZB117 as an Inhibitor of Glucose Transporter 1 for Venous Blood Glucose Determination.....	15
Daftar Pustaka.....	17

Novel PKD1 Mutations in Patients with Autosomal Dominant Polycystic Kidney Disease

Kim, Hyerin ¹ ; Hyung-Hoi, Kim ¹ ; Chang, Chulhun L ² ; Song, Sang Heon ³ ; Kim, Namhee ⁴

¹ Department of Laboratory Medicine, Pusan National University Hospital, Busan, Korea; Biomedical Research Institute, Pusan National University Hospital, Busan, Korea ² Department of Laboratory Medicine, Pusan National University Yangsan Hospital, Yangsan, Korea ³ Biomedical Research Institute, Pusan National University Hospital, Busan, Korea; Division of Nephrology, Department of Internal Medicine, Pusan National University Hospital, Busan, Korea ⁴ Biomedical Research Institute, Pusan National University Hospital, Busan, Korea; Department of Laboratory Medicine, Dong-A University College of Medicine, Busan, Korea

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Autosomal dominant polycystic kidney disease (ADPKD) is the most common genetic kidney disease. Identifying mutated causative genes can provide diagnostic and prognostic information. In this study, we describe the clinical application of a next generation sequencing (NGS)-based, targeted multi-gene panel test for the genetic diagnosis of patients with ADPKD.

Methods

We applied genetic analysis on 26 unrelated known or suspected patients with ADPKD. A total of 10 genes related to cystic change of kidney were targeted. Detected variants were classified according to standard guidelines.

Results

We identified 19 variants (detection rate: 73.1%), including *PKD1* (n = 18) and *PKD2* (n = 1). Of the 18 *PKD1* variants, 8 were novel.

Conclusion

Multigene panel test can be a comprehensive tool in a clinical setting for genetic diagnosis of ADPKD. It allows us to identify clinically significant novel variants and confirm the diagnosis, and these objectives are difficult to achieve using conventional diagnostic tools.

CRISPR-Based Approaches for Efficient and Accurate Detection of SARS-CoV-2

Zhang, Wancun ¹ ; Liu, Kangbo ² ; Zhang, Pin ³ ; Weyland Cheng ³ ; Li, Linfei ³ ; Zhang, Fan ⁴ ; Yu, Zhidan ³ ; Li, Lifeng ³ ; Zhang, Xianwei ⁵ ¹ Henan Key Laboratory of Children's Genetics and Metabolic Diseases, Children's Hospital Affiliated to Zhengzhou University, Henan Children's Hospital, Zhengzhou, China; Zhengzhou Key Laboratory of Precise Diagnosis and Treatment of Children's Malignant Tumors, Department of Pediatric Oncology Surgery, Children's Hospital Affiliated to Zhengzhou University, Zhengzhou, China ² Biological Testing Room, Henan Medical Equipment Inspection Institute, Henan Medical Equipment Inspection and Testing Engineering Technology Research Center, Henan Medical Equipment Biotechnology and Application Engineering Research Center, Zhengzhou, China ³ Henan Key Laboratory of Children's Genetics and Metabolic Diseases, Children's Hospital Affiliated to Zhengzhou University, Henan Children's Hospital, Zhengzhou, China ⁴ Department of Orthopedics, Fengqiu County People's Hospital, Xinxiang, China ⁵ Zhengzhou Key Laboratory of Precise Diagnosis and Treatment of Children's Malignant Tumors, Department of Pediatric Oncology Surgery, Children's Hospital Affiliated to Zhengzhou University, Zhengzhou, China

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

An outbreak of COVID-19, caused by infection with SARS-CoV-2 in Wuhan, China in December 2019, spread throughout the country and around the world, quickly. The primary detection technique for SARS-CoV-2, the reverse-transcription polymerase chain reaction (RT-PCR)-based approach, requires expensive reagents and equipment and skilled personnel. In addition, for SARS-CoV-2 detection, specimens are usually shipped to a designated laboratory for testing, which may extend the diagnosis and treatment time of patients with COVID-19. The latest research shows that clustered regularly interspaced short palindromic repeats (CRISPR)-based approaches can quickly provide visual, rapid, ultrasensitive, and specific detection of SARS-CoV-2 at isothermal conditions. Therefore, CRISPR-based approaches are expected to be developed as attractive alternatives to conventional RT-PCR methods for the efficient and accurate detection of SARS-CoV-2. Recent advances in the field of CRISPR-based biosensing technologies for SARS-CoV-2 detection and insights into their potential use in many applications are reviewed in this article.

Dokumen 3 dari 20

Effects of Cell-Derived Microparticles on Immune Cells and Potential Implications in Clinical Medicine

Noulsri, Egarit ¹

¹ Research Division, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

In the past few years, interest has increased in cell-derived microparticles (MPs), which are defined by their size of from 0.1 to 1 μm , and can be derived from various cell types, including endothelial cells, leukocytes, red blood cells (RBCs), and platelets. These MPs carry negatively charged phosphatidylserine (PS) on their surfaces and proteins

packaged from numerous cellular components. MPs that have been shed by the body can play important roles in the pathophysiology of diseases and can affect various biological systems. Among these systems, the immune components have been shown to be modulated by MPs. Therefore, understanding the roles of MPs in the immune system is crucial to developing alternative therapeutic treatments for diseases. This review describes the effects of MPs on various immune cells and provides plausible potential applications of the immune-modulating properties of MPs in clinical medicine.

Dokumen 4 dari 20

Potential Use of Antigen-Based Rapid Test for SARS-CoV-2 in Respiratory Specimens in Low-Resource Settings in Egypt for Symptomatic Patients and High-Risk Contacts

Abeer Mohamed Abdelrazik ¹ ; Shahira Morsy Elshafie ¹ ; Abdelaziz, Hossam M ¹ ¹ Clinical Pathology Department, Faculty of Medicine, Fayoum University Hospital, Fayoum, Egypt

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Because of the rapidly emerging SARS-CoV-2 pandemic and its wide public health challenges, rapid diagnosis is essential to decrease the spread. Antigen-based rapid detection tests are available; however, insufficient data about their performance are available.

Methods

The lateral-flow immunochromatographic BIOCREREDIT COVID-19 antigen test was evaluated using nasopharyngeal swabs in a viral transport medium from patients with confirmed infection, contacts, and exposed healthcare professionals at Fayoum University Hospital in Egypt. Test performance was determined in comparison to the SARS-CoV-2 real-time reverse-transcription polymerase chain reaction (RT-PCR) test.

Results

Three hundred ten specimens from 3 categories—patients with confirmed diagnoses of COVID-19, contacts, and exposed healthcare professionals—were included; 188 specimens were RT-PCR-positive, from which 81 were detected by rapid antigen test. Overall sensitivity was 43.1%. Sensitivity was significantly higher in specimens with high viral loads.

Conclusion

Poor sensitivity of the BIOCREREDIT COVID-19 test does not permit its use for diagnosis, and it can only be used in conjunction with RT-PCR for screening.

Acute Hemolytic Transfusion Reaction Due to Pooled Platelets: A Rare but Serious Adverse Event

Gammon, Richard ¹

; Cook, Susan ²; Trinkle, Anthony ³; Korena, Thomas ¹; Benson, Kaaron ² ¹ Scientific Medical and Technical Direction, OneBlood, Orlando, Florida ² Department of Pathology and Laboratory Medicine, Moffitt Cancer Center, Tampa, Florida ³ Immunohematology Reference Laboratory, OneBlood, St. Petersburg, Florida

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

A female patient aged 65 years with blood group A with relapsed lymphoma had thrombocytopenia; leukocyte-reduced group O prestorage pooled platelet concentrates (PPLTs) were transfused without adverse events. She was discharged home, but 1.5 hours later she returned with fever and dark urine. Hypotension and tachycardia developed; she was admitted to the intensive care unit. Post-transfusion blood and urine samples were obtained. Serial dilutions from 5 donor testing tubes and a simulated PLT pool were performed and read at immediate spin and IgG. Testing confirmed an acute hemolytic transfusion reaction (AHTR): elevated lactate dehydrogenase (996 U/L; normal range 135 U/L–225 U/L) and undetectable haptoglobin (<10 mg/dL; normal range 30 mg/dL–200 mg/dL) levels. Urinalysis showed dark amber urine but no significant quantity of red blood cells. At 37°C the simulated pool and donor number 5 had high-titer anti-A. As a precaution, the donor was permanently deferred. Research has shown that PLT-associated AHTR has occurred with apheresis platelets but is very rare with whole blood-derived PLTs.

SBAR as a Standardized Communication Tool for Medical Laboratory Science Students

Oliveira, Ana L ¹; Brown, Michelle ² ¹ Department of Clinical and Diagnostic Sciences, School of Health Professions, University of Alabama at Birmingham, Birmingham, Alabama ² Department of Health Services Administration, School of Health Professions, University of Alabama at Birmingham, Birmingham, Alabama; Office of Interprofessional Simulation for Innovative Clinical Practice University of Alabama at Birmingham, Birmingham, Alabama

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Laboratory professionals must communicate effectively on an interprofessional team. It is the responsibility of

Medical Laboratory Science (MLS) programs to teach communication. The structured communication tool Situation, Background, Assessment, and Recommendation (SBAR) is one way to promote effective communication.

Methods

Students participated in a case-based simulation activity on the importance of teamwork/communication and the use of SBAR and completed a pre/post survey on communicating interprofessionally.

Results

Students reported increased confidence and competence with interprofessional communication after the activity with 4 of 5 questions demonstrating a statistically significant increase in scores post SBAR instruction.

Conclusions

Our study demonstrates that SBAR is a suitable communication tool that can be used to increase our MLS students' confidence and competency in interprofessional communication. Educators should use this communication tool to empower MLS students to be effective members of the healthcare team.

Dokumen 7 dari 20

Cell-Derived Microparticles in Blood Products from Thalassemic Blood Donors

Noulsri, Egarit ¹

; Lerdwana, Surada ²; Palasuwan, Duangdao ³; Palasuwan, Attakorn ³ ¹ Research Division, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand ² Biomedical Research Incubator Unit, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand ³ Oxidation in Red Cell Disorders and Health Task Force, Department of Clinical Microscopy, Faculty of Allied Health Sciences, Chulalongkorn University, Bangkok, Thailand

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

To determine the number of cell-derived microparticles (MPs) in blood products obtained from donors who have thalassemia.

Methods

Packed red blood cells (PRBCs), plasma, and platelet concentrate (PC) were prepared according to routine procedures. We used flow cytometry to quantitate the concentration of MPs.

Results

The results of a comparison of MP levels in unprocessed whole blood showed that the concentration of all MPs in the donors without thalassemia trait (n = 255) was higher than in donors with thalassemia trait (n = 70). After processing, increased concentrations of MPs were documented in both groups. Among the blood components, PRBC showed higher platelet-derived MP concentrations in donors with thalassemia than in donors without thalassemia. However, PC showed higher concentrations of total MPs in donors without thalassemia than in donors with that condition.

Conclusions

Our results suggest little influence of thalassemia-trait status on changes in MP concentrations in blood components.

Dokumen 8 dari 20

How Reliable Is Automated Urinalysis in Acute Kidney Injury?

Chandrashekar, Vani ¹

; Tarigopula, Anil ²; Prabhakar, Vikram ¹ ¹ Department of Hematology, Clinical pathology, Apollo hospitals, Chennai, India ² Department of Centralised Molecular Diagnostics, Apollo Hospitals, Chennai, India

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Examination of urine sediment is crucial in acute kidney injury (AKI). In such renal injury, tubular epithelial cells, epithelial cell casts, and dysmorphic red cells may provide clues to etiology. The aim of this study was to compare automated urinalysis findings with manual microscopic analysis in AKI.

Methods

Samples from patients diagnosed with AKI and control patients were included in the study. Red blood cells, white blood cells, renal tubular epithelial cells/small round cells, casts, and pathologic (path) cast counts obtained microscopically and by a UF1000i cytometer were compared by Spearman test. Logistic regression analysis was used to assess the ability to predict AKI from parameters obtained from the UF1000i.

Results

There was poor correlation between manual and automated analysis in AKI. None of the parameters could predict AKI using logistic regression analysis. However, the increment in the automated path cast count increased the odds of AKI 93 times.

Conclusion

Automated urinalysis parameters are poor predictors of AKI, and there is no agreement with manual microscopy.

Corrigendum to: Comparison of Nucleic Acid Amplification and IgM Tests for the Diagnosis of Mycoplasma pneumoniae Infection in Children During a Recent Korean Outbreak

[Link dokumen ProQuest](#)

Absolute Lymphocytes, Ferritin, C-Reactive Protein, and Lactate Dehydrogenase Predict Early Invasive Ventilation in Patients With COVID-19

Payán-Pernía, Salvador ¹

; Lucía Gómez Pérez ¹; Remacha Sevilla, Ángel F ¹; Jordi Sierra Gil ¹; Silvana Novelli Canales ^{1 1}

Haematology Department, Hospital de la Santa Creu i Sant Pau, Sant Pau Research Institute, Universitat Autònoma de Barcelona, Barcelona, Spain

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Early detection of patients with COVID-19 who will need mechanical invasive ventilation (MIV) may aid in delivering proper care and optimizing the use of limited resources.

Methods

In this single-center retrospective observational study, we aimed to identify simple laboratory parameters that in combination with ferritin (a surrogate marker of severe inflammation) may help predict early (first 48 hours) MIV. A total of 160 patients with COVID-19 in whom serum ferritin, absolute lymphocyte count (ALC), platelet count, C-reactive protein (CRP), and lactate dehydrogenase (LDH) had been analyzed at admission were included.

Results

We found that ferritin, LDH, ALC, and CRP predicted with 88% accuracy the probability of early MIV. Results indicated that LDH showed the greater area under the curve (AUC), with a value of 89.1%. Using the AUC, we established cutoff values for clinical application. Finally, we developed a classification tree based on LDH for its clinical use.

Conclusion

Ferritin, LDH, ALC, and CRP predict with 88% accuracy the probability of early MIV.

Dokumen 11 dari 20

Neurogranin as a Novel Biomarker in Alzheimer's Disease

Agnello, Luisa ¹ ; Gambino, Caterina Maria ¹ ; Bruna Lo Sasso ² ; Bivona, Giulia ² ; Milano, Salvatore ³ ; Ciaccio, Anna Maria ⁴ ; Piccoli, Tommaso ⁵ ; Vincenzo La Bella ⁵ ; Ciaccio, Marcello ²

¹ Department of Biomedicine, Neurosciences and Advanced Diagnostics, Institute of Clinical Biochemistry, Clinical Molecular Medicine and Laboratory Medicine, University of Palermo, Palermo, Italy

² Department of Biomedicine, Neurosciences and Advanced Diagnostics, Institute of Clinical Biochemistry, Clinical Molecular Medicine and Laboratory Medicine, University of Palermo, Palermo, Italy;

³ Department of Laboratory Medicine, University Hospital "P. Giaccone," Palermo, Italy ⁴ Department of Laboratory Medicine, University Hospital "P. Giaccone," Palermo, Italy ⁵ Department of Biomedicine, Neurosciences and Advanced Diagnostics, Neurology Unit, University of Palermo, Palermo, Italy

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Background

In this study, we investigated the possible role of 2 novel biomarkers of synaptic damage, namely, neurogranin and α -synuclein, in Alzheimer disease (AD).

Methods

The study was performed in a cohort consisting of patients with AD and those without AD, including individuals with other neurological diseases. Cerebrospinal fluid (CSF) neurogranin and α -synuclein levels were measured by sensitive enzyme-linked immunosorbent assays (ELISAs).

Results

We found significantly increased levels of CSF neurogranin and α -synuclein in patients with AD than those without AD. Neurogranin was correlated with total tau (tTau) and phosphorylated tau (pTau), as well as with cognitive decline, in patients with AD. Receiver operating characteristic (ROC) curve analysis showed good diagnostic accuracy of neurogranin for AD at a cutoff point of 306 pg per mL with an area under the curve (AUC) of 0.872 and sensitivity and specificity of 84.2% and 78%, respectively.

Conclusions

Our findings support the use of CSF neurogranin as a biomarker of synapsis damage in patients with AD.

Comparison of Nucleic Acid Amplification and IgM Tests for the Diagnosis of *Mycoplasma pneumoniae* Infection in Children During a Recent Korean Outbreak

Hye-Young, Lee¹; Sul, Seunghwan²; Jeong Young Lee²; Mi-Na, Kim²; Yu, Jinho³; Sung, Heungsup²
¹ Department of Laboratory Medicine, University of Ulsan College of Medicine and Asan Medical Center, Seoul, Korea; Department of Laboratory Medicine, U2Bio Laboratories, Seoul, Republic of Korea
² Department of Laboratory Medicine, University of Ulsan College of Medicine and Asan Medical Center, Seoul, Korea
³ Department of Pediatrics, University of Ulsan College of Medicine and Asan Medical Center, Seoul, Korea

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

In the absence of standardized methods for *Mycoplasma pneumoniae* detection, we evaluated the diagnostic value of polymerase chain reaction (PCR) and IgM assays for detecting *M. pneumoniae* infection in children during a recent Korean outbreak.

Methods

The diagnostic performances of PCR and IgM assays for *M. pneumoniae* in 1,109 clinical specimens were evaluated by the Japanese Respiratory Society (JRS) scoring system as an interim reference standard.

Results

The level of agreement between both tests was fair. As analyzed by the JRS scoring system, the sensitivity of PCR was 45.2% in the group aged <5 years, 86.8% in the group aged 5 years to 10 years group, and 72.2% in the group aged 10 years to 18 years; the sensitivity of the IgM assay was 66.8%, 71.4%, and 55.6% in each group, respectively.

Conclusion

The sensitivity of PCR is relatively low but is superior to that of IgM assays such that diagnostic performance can be improved by both test methods in patients aged <5 years.

Gonorrhea and Chlamydia Specimen Positivity Rate by Polymerase Chain Reaction at a Regional Veteran Affairs Medical Center

Petersen, Jeffrey M ¹

; Patel, Sahil ²; Dalal, Sharvari ¹; Jhala, Darshana ¹ ¹ Department of Pathology and Laboratory Medicine, Michael J. Crescenz Veteran Affairs Medical Center, Philadelphia, Pennsylvania; Department of Pathology and Laboratory Medicine, Philadelphia, Pennsylvania ² Department of Pathology and Laboratory Medicine, Michael J. Crescenz Veteran Affairs Medical Center, Philadelphia, Pennsylvania

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Sexually transmitted infections because of *Neisseria gonorrhoeae* (NG) and/or *Chlamydia trachomatis* (CT) remain a major public health problem. Although the literature describes the population-based epidemiology of CT/NG, it does not appear to contain reference points for the statistical analyses of specimen positivity rates by nucleic acid testing (NAT) with polymerase chain reaction (PCR) that would be collected by a laboratory following best laboratory and regulatory practice. For facilities that diagnose NG and CT by a real-time PCR assay, an understanding of the expected specimen positivity rate of gonorrhea and chlamydia would be helpful for monitoring the assay for quality assurance. Therefore, on behalf of the Michael J. Crescenz Veteran Affairs Medical Center (VAMC), we present this novel quality assurance study on its CT/NG specimen positivity rates conducted by NAT with PCR.

Methods

Quality assurance/improvement quarterly data from April 1, 2012 to September 30, 2019 were reviewed to obtain both the test volume of PCR for CT/NG and the number of positive test results at the VAMC to collate and perform statistical analyses. Testing had been performed using the Abbott m2000 RealTime System (Abbott Park, IL).

Results

A total of 22,709 PCR tests for CT/NG had been performed on the veteran population; of these, 502 tests were positive for NG and 744 were positive for CT. Quarterly percentage rates ranged from 1.67% to 5.30% for CT and from 1.00% to 3.25% for NG, with average rates of 3.35% and 2.22% for CT and NG, respectively.

Conclusion

The establishment of an expected rate of specimen positivity of CT/NG by NAT with PCR at the VAMC is a significant novel reference point in the quality assurance (QA) literature and provides a benchmark that aids tremendously in QA for the microbiology/molecular laboratory.

Dokumen 14 dari 20

Criticality of In-House Preparation of Viral Transport Medium in Times of Shortage During COVID-19 Pandemic

Petersen, Jeffrey ¹

; Dalal, Sharvari ¹ ; Jhala, Darshana ¹ ¹ Corporal Michael J. Crescenz Veteran Affairs Medical Center, Philadelphia, Pennsylvania; University of Pennsylvania, Philadelphia, Pennsylvania

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

With the COVID-19 pandemic, there have been supply challenges necessitating that laboratories must prepare their own viral transport medium (VTM), which provides stability for clinical specimens for diagnostic viral testing.

Methods

Within a veteran affairs medical center clinical laboratory, VTM was prepared with a Hanks Balanced Salt Solution (HBSS) 500 mL bottle with phenol red, sterile heat-inactivated fetal bovine serum (FBS), gentamicin sulfate (50 mg/mL), and amphotericin B (250 µg/mL). An antimicrobial mixture was made of 50 mL each of amphotericin B and gentamicin sulfate. Ten mL of FBS and 2 mL of the antimicrobial mixture were mixed into the HBSS bottle, from which 3 mL aliquots were made. Sterility and efficacy check were assessed. These preparations were conducted at our VAMC's clinical laboratory to assure adequate VTM supply during the COVID-19 shortage.

Results

The VTM was successfully prepared in-house, supporting uninterrupted testing for the facility and other affiliated medical facilities/centers and community living centers.

Conclusion

This quality assurance/improvement report represents the first published manuscript on feasible VTM preparation exclusively within a clinical microbiology laboratory during the COVID-19 pandemic.

Dokumen 15 dari 20

Variation in LOD Across SARS-CoV-2 Assay Systems: Need for Standardization

Sohni, Youvraj ¹ ¹ Science and Technology, LabCorp, Elon, North Carolina

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Multiple SARS-CoV-2 emergency use authorization (EUA) tests are being used for clinical testing across various clinical testing laboratories for meeting the diagnostic challenges of the ongoing pandemic. However, cross-assay variations in performance characteristics need to be recognized. A better understanding is needed of the clinical implications of cross-assay variation in performance characteristics, particularly in the limit of detection (LOD) of the SARS-CoV-2 assays used for clinical testing. Herein, a snapshot of the diversity of SARS-CoV-2 EUA analytical assay systems including methodologies, assay designs, and technology platforms is presented. Factors affecting the variations in LOD are discussed. Potential measures that may standardize across the various assay systems are suggested. Development of international standards and reference materials for the establishment of performance characteristics may substantially alleviate potential clinical decision-making challenges. Finally, cross-assay variation in LODs among the diverse SARS-CoV-2 diagnostic assays impacts clinical decision-making with multiple assay systems in use and lack of standardization across platforms. International standards in parallel with continued cross-platform studies and collaborative efforts across pertinent healthcare entities will help mitigate some of the clinical decision-making challenges.

Dokumen 16 dari 20

The Utility of Elevated Serum Lactate Dehydrogenase in Current Clinical Practice

Krishnamurthy, Kritika ¹

; Medina, Ana Maria ²; Howard, Lydia ² ¹ Arkadi M. Rywlin M.D. Department of Pathology and Laboratory Medicine, Mount Sinai Medical Center, Miami Beach, Florida ² Arkadi M. Rywlin M.D. Department of Pathology and Laboratory Medicine, Mount Sinai Medical Center, Miami Beach, Florida; Florida International University, Herbert Wertheim College of Medicine, Miami, Florida

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Because of its wide tissue distribution, elevation of serum lactate dehydrogenase (LD) is a nonspecific finding. Although serum LD is still included in the prognosis and staging of metastatic melanoma and germ cell tumors, its nonspecificity has led to decreased usefulness.

Methods

In this study, we analyzed the serum LD assays performed in a 726-bed hospital during a 1-year period and reviewed charts of patients with serum LD of >3 standard deviations (SD).

Results

Of 312 patients with elevated serum LD, only 9 were patients with melanoma and germ cell tumors. The other 303 patients had other malignancies, chronic conditions, and sepsis.

Conclusion

Elevated serum LD (even >3 SD) is an extremely nonspecific finding that does not contribute to clinical management in a majority of patients. As such, serum LD testing should be retired from routine clinical order sets and restricted in use.

Dokumen 17 dari 20

Machine Learning Prediction of SARS-CoV-2 Polymerase Chain Reaction Results with Routine Blood Tests

Tschoellitsch, Thomas ¹

; Dünser, Martin ¹; Böck, Carl ¹; Schwarzbauer, Karin ²; Meier, Jens ¹ ¹ Department of Anesthesiology and Critical Care Medicine, Kepler University Hospital GmbH and Johannes Kepler University, Faculty of Medicine, Linz, Austria ² Institute for Machine Learning, Johannes Kepler University, Linz, Austria

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

The diagnosis of COVID-19 is based on the detection of SARS-CoV-2 in respiratory secretions, blood, or stool. Currently, reverse transcription polymerase chain reaction (RT-PCR) is the most commonly used method to test for SARS-CoV-2.

Methods

In this retrospective cohort analysis, we evaluated whether machine learning could exclude SARS-CoV-2 infection using routinely available laboratory values. A Random Forests algorithm with 28 unique features was trained to predict the RT-PCR results.

Results

Out of 12,848 patients undergoing SARS-CoV-2 testing, routine blood tests were simultaneously performed in 1357 patients. The machine learning model could predict SARS-CoV-2 test results with an accuracy of 86% and an area under the receiver operating characteristic curve of 0.74.

Conclusion

Machine learning methods can reliably predict a negative SARS-CoV-2 RT-PCR test result using standard blood tests.

ABL Kinase Domain Mutations in Iranian Chronic Myeloid Leukemia Patients with Resistance to Tyrosine Kinase Inhibitors

Shojaei, Mahboobeh ¹ ; Rezvani, Hamid ² ; Azarkeivan, Azita ¹ ; Poopak, Behzad ³ ¹ Iranian Blood Transfusion Organization, High Institute of Research and Education in Transfusion Medicine, Tehran, Iran ² Hematology and Oncology Center, Taleghani Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran ³ Department of Hematology, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, IR Iran

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Tyrosine kinase inhibitors (TKIs) are considered standard first-line treatment in patients with chronic myeloid leukemia. Because ABL kinase domain mutations are the most common causes of treatment resistance, their prevalence and assessment during treatment may predict subsequent response to therapy.

Methods

The molecular response in *Bcr-Abl1^{IS}* was tested via quantitative real-time polymerase chain reaction. We used the direct sequencing technique to discover the mutations in the ABL kinase domain. The IRIS trial established a standard baseline for measurement – (100% BCR-ABL1 on the ‘international scale’) and a major molecular response (good response to therapy) was defined as a 3-log reduction in the amount of BCR-ABL1 – 0.1% BCR-ABL1 on the international scale.

Results

We observed 11 different mutations in 13 patients, including E255K, which had the highest mutation rate. A lack of hematologic response was found in 22 patients, who showed a significantly higher incidence of mutations.

Conclusion

Detection of kinase domain mutations is a reliable method for choosing the best treatment strategy based on patients’ conditions, avoiding ineffective treatments, and running high-cost protocols in patients with acquired resistance to TKIs.

Reporting Sysmex XN Absolute Neutrophil Count in Samples with Leukocyte Analyzer Flagging

Anna-Maria Linko-Parvinen ¹ ; Turkia, Heidi ¹ ¹ Laboratory of Haematology, Tykslab, Laboratory Division, Turku University Hospital, Turku, Finland

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

To provide faster laboratory data reporting, we evaluated the accuracy of Sysmex XN (Sysmex Inc, Kobe, Japan) absolute neutrophil count (ANC) in the presence of analyzer flagging.

Methods

Sysmex XN and manual microscopy ANC were compared with 80 autovalidated control specimens and with 280 study specimens with analyzer flagging regarding immature granulocytes (IG) >3% or other leukocyte abnormalities. Specimens with ambiguous neutrophil clusters were excluded.

Results

A slight positive overall method bias was seen for Sysmex XN compared to manual microscopy (n = 280), 0.025 (95% confidence interval [CI], -0.023 to 0.069) × 10⁹/L. With IG >10% (n = 123) the bias was larger, but not clinically significant, 0.17 (95% CI, 0.060–0.25) × 10⁹/L. No clinically significant difference was seen in neutropenic (ANC <1.5 × 10⁹/L) specimens (n = 91), 0.070 (95% CI, -0.013 to 0.14) × 10⁹/L.

Conclusion

These data indicate that Sysmex XN ANC can be reported in the presence of certain analyzer flagging to improve patient care.

Dokumen 20 dari 20

Effect of Addition of WZB117 as an Inhibitor of Glucose Transporter 1 for Venous Blood Glucose Determination

Zhang, Lei ¹ ; Yaqiong Ran ¹ ; Zhu, Yan ¹ ; Qianna Zhen ² ¹ Clinical Laboratory, the First Affiliated Hospital of Chongqing Medical University, Chongqing, China ² Department of Endocrinology, the First Affiliated Hospital of Chongqing Medical University, Chongqing, China

[Link dokumen ProQuest](#)

ABSTRAK (ENGLISH)

Objective

Sodium fluoride (NaF) has been applied to inhibit glycolysis in venous specimens for decades. However, it has had little effect on the rate of glycolysis in the first 1 to 2 hours, resulting in a decrease of glucose, so a more efficient method is needed. Recently, we discovered that WZB117, a specific Glut1 inhibitor, restricts glycolysis by inhibiting the passive sugar transport of human red blood cells and cancer cells. The purpose of this study was to evaluate the results of intravenous blood glucose determination after the addition of WZB117.

Methods

Venous specimens from 40 pairs of healthy volunteers were collected for several days and placed in tubes containing NaF plus EDTA-disodium (Na₂) without WZB117 (the A group); citric acid, trisodium citrate, and EDTA-Na₂ without WZB117 (B group); and NaF plus EDTA-Na₂ with WZB117 (C group). The glucose concentration was measured after venipuncture and compared with test tubes treated for 1 hour, 2 hours, and 3 hours before centrifugation. Glucose level was determined by the hexokinase method. The paired *t*-test was used to examine differences in glucose values at baseline and at different time points. The number of misdiagnoses and the misdiagnosis rate were calculated at 2 diagnostic stages: high risk of diabetes (glucose level of 6.1 mmol/L) and diagnosis of diabetes (glucose level of 7.0 mmol/L).

Results

Glucose levels decreased by 1.0% at 1 hour and by 2.1% at 3 hours in the C group tubes and simultaneously decreased by 1.7% at 1 hour and by 2.5% at 3 hours in the B group tubes. In contrast, glucose levels decreased by 4.1% at 1 hour and by 6.3% at 3 hours in the A group tubes. There was a statistically significant difference in glucose levels measured in the A group tubes and B group tubes at 1 hour, 2 hours, and 3 hours. The misdiagnosis rate of clinical diagnosis in diabetes was highest in the A group tubes (7.0‰ at 1 hour, 0.1‰ at 3 hours at 7.0 mmol/L point; 14.6‰ at 1 hour, 0.4‰ at 3 hours at 6.1 mmol/L point) and lowest in the C group tubes (2.95‰ at 1 hour, 0‰ at 3 hours at 7.0 mmol/L point; 4.8‰ at 1 hour, 0.1‰ at 3 hours at 6.1 mmol/L point).

Conclusion

The tube addition of WZB117 is more suitable for minimizing glycolysis and has no effect on glucose levels even if specimens are left uncentrifuged for up to 3 hours.

Daftar Pustaka

Citation style: APA 6th - Annotated with Abstracts - American Psychological Association, 6th Edition

Kim, H., Hyung-Hoi, K., Chang, C. L., Song, S. H., & Kim, N. (2021). Novel PKD1 mutations in patients with autosomal dominant polycystic kidney disease. *Labmedicine*, 52(2), 174-180.

doi:<https://doi.org/10.1093/labmed/lmaa047>

Objective Autosomal dominant polycystic kidney disease (ADPKD) is the most common genetic kidney disease. Identifying mutated causative genes can provide diagnostic and prognostic information. In this study, we describe the clinical application of a next generation sequencing (NGS)-based, targeted multi-gene panel test for the genetic diagnosis of patients with ADPKD. **Methods** We applied genetic analysis on 26 unrelated known or suspected patients with ADPKD. A total of 10 genes related to cystic change of kidney were targeted. Detected variants were classified according to standard guidelines. **Results** We identified 19 variants (detection rate: 73.1%), including PKD1 (n = 18) and PKD2 (n = 1). Of the 18 PKD1 variants, 8 were novel. **Conclusion** Multigene panel test can be a comprehensive tool in a clinical setting for genetic diagnosis of ADPKD. It allows us to identify clinically significant novel variants and confirm the diagnosis, and these objectives are difficult to achieve using conventional diagnostic tools.

Zhang, W., Liu, K., Zhang, P., Cheng, W., Li, L., Zhang, F., . . . Zhang, X. (2021). CRISPR-based approaches for efficient and accurate detection of SARS-CoV-2. *Labmedicine*, 52(2), 116-121.

doi:<https://doi.org/10.1093/labmed/lmaa101>

An outbreak of COVID-19, caused by infection with SARS-CoV-2 in Wuhan, China in December 2019, spread throughout the country and around the world, quickly. The primary detection technique for SARS-CoV-2, the reverse-transcription polymerase chain reaction (RT-PCR)-based approach, requires expensive reagents and equipment and skilled personnel. In addition, for SARS-CoV-2 detection, specimens are usually shipped to a designated laboratory for testing, which may extend the diagnosis and treatment time of patients with COVID-19. The latest research shows that clustered regularly interspaced short palindromic repeats (CRISPR)-based approaches can quickly provide visual, rapid, ultrasensitive, and specific detection of SARS-CoV-2 at isothermal conditions. Therefore, CRISPR-based approaches are expected to be developed as attractive alternatives to conventional RT-PCR methods for the efficient and accurate detection of SARS-CoV-2. Recent advances in the field of CRISPR-based biosensing technologies for SARS-CoV-2 detection and insights into their potential use in many applications are reviewed in this article.

Noulsri, E. (2021). Effects of cell-derived microparticles on immune cells and potential implications in clinical medicine. *Labmedicine*, 52(2), 122-135. doi:<https://doi.org/10.1093/labmed/lmaa043>

In the past few years, interest has increased in cell-derived microparticles (MPs), which are defined by their size of from 0.1 to 1 μm , and can be derived from various cell types, including endothelial cells, leukocytes, red blood cells (RBCs), and platelets. These MPs carry negatively charged phosphatidylserine (PS) on their surfaces and proteins packaged from numerous cellular components. MPs that have been shed by the body can play important roles in the pathophysiology of diseases and can affect various biological systems. Among these systems, the immune components have been shown to be modulated by MPs. Therefore, understanding the roles of MPs in the immune system is crucial to developing alternative therapeutic treatments for diseases. This review describes the effects of MPs on various immune cells and provides plausible potential applications of the immune-modulating properties of MPs in clinical medicine.

Abeer, M. A., Shahira, M. E., & Abdelaziz, H. M. (2021). Potential use of antigen-based rapid test for SARS-CoV-2 in respiratory specimens in low-resource settings in Egypt for symptomatic patients and high-risk contacts. *Labmedicine*, 52(2), e46-e49. doi:<https://doi.org/10.1093/labmed/lmaa104>

Objective Because of the rapidly emerging SARS-CoV-2 pandemic and its wide public health challenges, rapid diagnosis is essential to decrease the spread. Antigen-based rapid detection tests are available; however,

insufficient data about their performance are available. **Methods** The lateral-flow immunochromatographic BIOCREDIT COVID-19 antigen test was evaluated using nasopharyngeal swabs in a viral transport medium from patients with confirmed infection, contacts, and exposed healthcare professionals at Fayoum University Hospital in Egypt. Test performance was determined in comparison to the SARS-CoV-2 real-time reverse-transcription polymerase chain reaction (RT-PCR) test. **Results** Three hundred ten specimens from 3 categories—patients with confirmed diagnoses of COVID-19, contacts, and exposed healthcare professionals—were included; 188 specimens were RT-PCR-positive, from which 81 were detected by rapid antigen test. Overall sensitivity was 43.1%. Sensitivity was significantly higher in specimens with high viral loads. **Conclusion** Poor sensitivity of the BIOCREDIT COVID-19 test does not permit its use for diagnosis, and it can only be used in conjunction with RT-PCR for screening.

Gammon, R., Cook, S., Trinkle, A., Korena, T., & Benson, K. (2021). Acute hemolytic transfusion reaction due to pooled platelets: A rare but serious adverse event. *Labmedicine*, 52(2), 202-204. doi:<https://doi.org/10.1093/labmed/lmaa056>

A female patient aged 65 years with blood group A with relapsed lymphoma had thrombocytopenia; leukocyte-reduced group O prestorage pooled platelet concentrates (PPLTs) were transfused without adverse events. She was discharged home, but 1.5 hours later she returned with fever and dark urine. Hypotension and tachycardia developed; she was admitted to the intensive care unit. Post-transfusion blood and urine samples were obtained. Serial dilutions from 5 donor testing tubes and a simulated PLT pool were performed and read at immediate spin and IgG. Testing confirmed an acute hemolytic transfusion reaction (AHTR): elevated lactate dehydrogenase (996 U/L; normal range 135 U/L–225 U/L) and undetectable haptoglobin (<10 mg/dL; normal range 30 mg/dL–200 mg/dL) levels. Urinalysis showed dark amber urine but no significant quantity of red blood cells. At 37°C the simulated pool and donor number 5 had high-titer anti-A. As a precaution, the donor was permanently deferred. Research has shown that PLT-associated AHTR has occurred with apheresis platelets but is very rare with whole blood–derived PLTs.

Oliveira, A. L., & Brown, M. (2021). SBAR as a standardized communication tool for medical laboratory science students. *Labmedicine*, 52(2), 136-140. doi:<https://doi.org/10.1093/labmed/lmaa061>

Objective Laboratory professionals must communicate effectively on an interprofessional team. It is the responsibility of Medical Laboratory Science (MLS) programs to teach communication. The structured communication tool Situation, Background, Assessment, and Recommendation (SBAR) is one way to promote effective communication. **Methods** Students participated in a case-based simulation activity on the importance of teamwork/communication and the use of SBAR and completed a pre/post survey on communicating interprofessionally. **Results** Students reported increased confidence and competence with interprofessional communication after the activity with 4 of 5 questions demonstrating a statistically significant increase in scores post SBAR instruction. **Conclusions** Our study demonstrates that SBAR is a suitable communication tool that can be used to increase our MLS students' confidence and competency in interprofessional communication. Educators should use this communication tool to empower MLS students to be effective members of the healthcare team.

Noulsri, E., Lerdwana, S., Palasuwan, D., & Palasuwan, A. (2021). Cell-derived microparticles in blood products from thalassemic blood donors. *Labmedicine*, 52(2), 150-157. doi:<https://doi.org/10.1093/labmed/lmaa041>

Objective To determine the number of cell-derived microparticles (MPs) in blood products obtained from donors who have thalassemia. **Methods** Packed red blood cells (PRBCs), plasma, and platelet concentrate (PC) were prepared according to routine procedures. We used flow cytometry to quantitate the concentration of MPs. **Results** The results of a comparison of MP levels in unprocessed whole blood showed that the concentration of all MPs in the donors without thalassemia trait (n = 255) was higher than in donors with thalassemia trait (n = 70). After processing, increased concentrations of MPs were documented in both groups. Among the blood components, PRBC showed higher platelet-derived MP concentrations in donors with thalassemia than in donors without thalassemia. However, PC showed higher concentrations of total MPs in donors without thalassemia than in donors with that condition. **Conclusions** Our results suggest little influence of thalassemia-trait status on changes in MP concentrations in blood

components.

Chandrashekar, V., Tarigopula, A., & Prabhakar, V. (2021). How reliable is automated urinalysis in acute kidney injury? *Labmedicine*, 52(2), e30-e38. doi:<https://doi.org/10.1093/labmed/lmaa069>

Objective Examination of urine sediment is crucial in acute kidney injury (AKI). In such renal injury, tubular epithelial cells, epithelial cell casts, and dysmorphic red cells may provide clues to etiology. The aim of this study was to compare automated urinalysis findings with manual microscopic analysis in AKI. Methods Samples from patients diagnosed with AKI and control patients were included in the study. Red blood cells, white blood cells, renal tubular epithelial cells/small round cells, casts, and pathologic (path) cast counts obtained microscopically and by a UF1000i cytometer were compared by Spearman test. Logistic regression analysis was used to assess the ability to predict AKI from parameters obtained from the UF1000i. Results There was poor correlation between manual and automated analysis in AKI. None of the parameters could predict AKI using logistic regression analysis. However, the increment in the automated path cast count increased the odds of AKI 93 times. Conclusion Automated urinalysis parameters are poor predictors of AKI, and there is no agreement with manual microscopy.

Corrigendum to: Comparison of nucleic acid amplification and IgM tests for the diagnosis of mycoplasma pneumoniae infection in children during a recent Korean outbreak. (2021). *Labmedicine*, 52(2), 205. doi:<https://doi.org/10.1093/labmed/lmaa092>

Payán-Pernía, S., Lucía Gómez Pérez, Remacha Sevilla, Á., F., Jordi, S. G., & Silvana, N. C. (2021). Absolute lymphocytes, ferritin, C-reactive protein, and lactate dehydrogenase predict early invasive ventilation in patients with COVID-19. *Labmedicine*, 52(2), 141-145. doi:<https://doi.org/10.1093/labmed/lmaa105>

Objective Early detection of patients with COVID-19 who will need mechanical invasive ventilation (MIV) may aid in delivering proper care and optimizing the use of limited resources. Methods In this single-center retrospective observational study, we aimed to identify simple laboratory parameters that in combination with ferritin (a surrogate marker of severe inflammation) may help predict early (first 48 hours) MIV. A total of 160 patients with COVID-19 in whom serum ferritin, absolute lymphocyte count (ALC), platelet count, C-reactive protein (CRP), and lactate dehydrogenase (LDH) had been analyzed at admission were included. Results We found that ferritin, LDH, ALC, and CRP predicted with 88% accuracy the probability of early MIV. Results indicated that LDH showed the greater area under the curve (AUC), with a value of 89.1%. Using the AUC, we established cutoff values for clinical application. Finally, we developed a classification tree based on LDH for its clinical use. Conclusion Ferritin, LDH, ALC, and CRP predict with 88% accuracy the probability of early MIV.

Agnello, L., Gambino, C. M., Sasso, B. L., Bivona, G., Milano, S., Ciaccio, A. M., . . . Ciaccio, M. (2021). Neurogranin as a novel biomarker in Alzheimer's disease. *Labmedicine*, 52(2), 188-196. doi:<https://doi.org/10.1093/labmed/lmaa062>

Hak cipta basis data © 2023 ProQuest LLC. Semua hak cipta dilindungi.

[Syarat dan Ketentuan](#) [Hubungi ProQuest](#)