Classifications

**Title**: Cancer du poumon à l’ère du COVID-19: Lung cancer in the COVID-19 era

**DOI**: 10.1016/s1877-1203(20)30155-5

**Classification**: 1

**Abstract**: The Covid-19 epidemic has placed considerable strain on healthcare systems in all countries. The impacts are multiple for patients treated for cancer.The objective of this manuscript is to summarize the epidemiological data available on patients with lung cancer developing a Covid infection, in particular the risk factors for aggravation and mortality, to describe the different strategies to improve the management of these patients and to summarize the existing recommendations in this area.The largest cohort on this subject, Teravolt, which included 1012 patients, found a hospitalization rate of 72 %, an aggravation rate of 56 % and a mortality of 32 %. In multivariate analysis, age ≥65 years (OR 1.53 CI 1.11-2.1), active smoking (OR 2 CI 1.3-3), metastatic status (OR 1.9 CI 1, 3-2.7), an ECOG PS ≥2 (OR 3.7 CI 2.7-5), taking corticosteroids before COVID infection (OR 1.8 CI 1.2-2.7), are associated with a higher risk of mortality but not treatments with chemotherapy or targeted therapies. Interestingly, treatment with immunotherapy appears to decrease the risk of mortality (OR 0.6 CI 0.97)Several screening strategies for asymptomatic forms have been reported in the literature and seem useful for diagnosing asymptomatic forms in patients undergoing systemic treatment or radiotherapy. Finally, national and international recommendations converge on many points, in particular for the need to protect patients and their families from Covid by assessing the benefit / risk of treatment on a case-by-case basis.

**Title**: Antimicrobial resistant and extended-spectrum ß-lactamase (ESBL) producing Escherichia coli isolated from fecal samples of African dromedary camels

**DOI**: 10.1016/j.sciaf.2020.e00274

**Classification**:1

**Abstract**: This study was conducted to determine the distribution of antimicrobial resistance among Escherichia coli isolated from feces of healthy dromedary camels in Kenya. A total of 162 fecal samples were cultivated for E. coli. Samples were also subcultivated to detect E. coli with extended-spectrum ß-lactamases (ESBLs). Antimicrobial susceptibility testing (AST) was performed by disk diffusion using a panel of 16 antimicrobials. In addition, isolates were screened for the presence of the plasmid-mediated colistin resistance genes mcr-1 to mcr-5.

Samples from 20 (12.4%) of the camels contained antimicrobial resistant (AMR) E. coli, and 85% of the AMR isolates were multidrug resistant (MDR). The highest frequency of resistance was observed to tetracycline (11.7%), followed by ampicillin and streptomycin (both 10.5%), and sulfamethoxazole/trimethoprim (9.9%). Two (1.2%) of the isolates showed intermediate resistance to cefazolin and streptomycin, respectively. All the isolates were susceptible to amoxycillin/clavulanic acid, ciprofloxacin, fosfomycin, aztreonam and kanamycin, and 86.4% of the isolates were susceptible to all 16 antimicrobials used in this study. The prevalence of fecal carriage of ESBL producing E. coli was 0.6%. PCR and amplicon sequencing showed that the ESBL producer belonged to E. coli phylogenetic group A, sequence type (ST) 48, and harbored blaCTX-M-15. None of the isolates contained mcr genes. The results indicate that dromedary camels in Kenya may be reservoirs of AMR E. coli, including ESBL producers, that could potentially be transmitted to humans by direct contact or via the food chain.

**Title**: Comparative analysis of three laboratory based serological assays for SARS-CoV-2 in an Australian cohort

**DOI**: 10.1016/j.pathol.2020.09.008

**Classification**: 1

**Abstract**: Many unanswered questions remain regarding the role of SARS-CoV-2 serological assays in this unfolding COVID-19 pandemic. These include their utility for the diagnosis of acute SARS-CoV-2 infection, past infection or exposure, correlation with immunity and the effective duration of immunity. This study examined the performance of three laboratory based serological assays, EUROIMMUN Anti-SARS-CoV-2 IgA/IgG, MAGLUMI 2000 Plus 2019-nCov IgM/IgG and EDI Novel Coronavirus (COVID-19) IgM/IgG immunoassays.

We evaluated 138 samples from a reference non-infected population and 71 samples from a cohort of 37 patients with SARS-CoV-2 confirmed positive by RT-PCR. The samples were collected at various intervals of 0–45 days post symptoms onset (PSO).

Specificity and sensitivity of these assays was 60.9%/71.4% (IgA) and 94.2%/63.3% (IgG) for EUROIMMUN; 98.5%/18.4% (IgM) and 97.8%/53.1% (IgG) for MAGLUMI; and 94.9%/22.5% (IgM) and 93.5%/57.1% (IgG) for EDI, respectively. When samples collected ≥14 days PSO were considered, the sensitivities were 100.0 and 100.0%; 31.0 and 82.8%; 34.5 and 57.1%, respectively. Using estimated population prevalence of 0.1, 1, and 10%, the positive predictive value of all assays remained low.

The EUROIMMUN Anti-SARS-CoV-2 IgA lacked specificity for acute diagnosis and all IgM assays offered poor diagnostic utility. Seroconversion can be delayed although all patients had seroconverted at 28 days in our cohort with the EUROIMMUN Anti-SARS-CoV-2 IgG. Despite this, with specificity of only 94% this assay would not be satisfactory for seroprevalence studies in the general Australian population given this is likely to be currently <1%.

**Title**: SABR-BRIDGE: Stereotactic ABlative Radiotherapy Before Resection to AvoId Delay for Early-Stage LunG Cancer or OligomEts During the COVID-19 Pandemic

**DOI**: 10.3389/fonc.2020.580189

**Classification**: 1

**Abstract**: Surgical resection is the standard-of-care approach for early-stage non-small cell lung cancer (NSCLC). Surgery is also considered an acceptable standard infit patients with oligometastatic lesions in the lungs. The COVID-19 pandemic has led to worldwide issues with access to operating room time, with patients and physicians facing uncertainty as to when surgical resection will be available, with likely delays of months. Further compounding this are concerns about increased risks of respiratory complications with lung cancer surgery during active phases of the pandemic. In this setting, many thoracic oncology teams are embracing a paradigm where stereotactic ablative radiotherapy (SABR) is used as a bridge, to provide radical-intent treatment based on a combination of immediate SABR followed by planned surgery in 3–6 months. This pragmatic approach to treatment has been named SABR-BRIDGE (Stereotactic ABlative Radiotherapy Before Resection to avoId Delay for early-stage lunG cancer or oligomEts). This term has also been applied to the pragmatic study of the outcomes of this approach. In this paper, we discuss the standards of care in treatment of early-stage (NSCLC) and pulmonary oligometastases, the impetus for the SABR-BRIDGE approach, and the controversies surrounding assessment of pathological response to neo-adjuvant radiation therapy.

**Title**: Might proton pump or sodium‐hydrogen exchanger inhibitors be of value to ameliorate SARs‐CoV‐2 pathophysiology?

**DOI**: 10.14814/phy2.14649

**Classification**: 1

**Abstract**:

Discovering therapeutics for COVID‐19 is a priority. Besides high‐throughput screening of compounds, candidates might be identified based on their known mechanisms of action and current understanding of the SARs‐CoV‐2 life cycle. Using this approach, proton pump (PPIs) and sodium‐hydrogen exchanger inhibitors (NHEIs) emerged, because of their potential to inhibit the release of extracellular vesicles (EVs; exosomes and/or microvesicles) that could promote disease progression, and to directly disrupt SARs‐CoV‐2 pathogenesis. If EVs exacerbate SARs‐CoV‐2 infection as suggested for other viruses, then inhibiting EV release by PPIs/NHEIs should be beneficial. Mechanisms underlying inhibition of EV release by these drugs remain uncertain, but may involve perturbing endosomal pH especially of multivesicular bodies where intraluminal vesicles (nascent exosomes) are formed. Additionally, PPIs might inhibit the endosomal sorting complex for transport machinery involved in EV biogenesis. Through perturbing endocytic vesicle pH, PPIs/NHEIs could also impede cleavage of SARs‐CoV‐2 spike protein by cathepsins necessary for viral fusion with the endosomal membrane. Although pulmonary epithelial cells may rely mainly on plasma membrane serine protease TMPRSS2 for cell entry, PPIs/NHEIs might be efficacious in ACE2‐expressing cells where viral endocytosis is the major or a contributing entry pathway. These pharmaceutics might also perturb pH in the endoplasmic reticulum‐Golgi intermediate and Golgi compartments, thereby potentially disrupting viral assembly and glycosylation of spike protein/ACE2, respectively. A caveat, however, is that facilitation not inhibition of avian infectious bronchitis CoV pathogenesis was reported in one study after increasing Golgi pH. Envelope protein‐derived viroporins contributed to pulmonary edema formation in mice infected with SARs‐CoV. If similar pathogenesis occurs with SARs‐CoV‐2, then blocking these channels with NHEIs could ameliorate disease pathogenesis. To ascertain their potential efficacy, PPIs/NHEIs need evaluation in cell and animal models at various phases of SARs‐CoV‐2 infection. If they prove to be therapeutic, the greatest benefit might be realized with the administration before the onset of severe cytokine release syndrome.

**Title**: Time-series analyses of directional sequence changes in SARS-CoV-2 genomes and an efficient search method for candidates for advantageous mutations for growth in human cells

**DOI**: 10.1016/j.gene.2020.100038

**Classification**: 1

**Abstract**: We first conducted time-series analysis of mono- and dinucleotide composition for over 10,000 SARS-CoV-2 genomes, as well as over 1500 Zaire ebolavirus genomes, and found clear time-series changes in the compositions on a monthly basis, which should reflect viral adaptations for efficient growth in human cells. We next developed a sequence alignment free method that extensively searches for advantageous mutations and rank them in an increase level for their intrapopulation frequency. Time-series analysis of occurrences of oligonucleotides of diverse lengths for SARS-CoV-2 genomes revealed seven distinctive mutations that rapidly expanded their intrapopulation frequency and are thought to be candidates of advantageous mutations for the efficient growth in human cells.

**Title**: Rapid and quantitative detection of SARS-CoV-2 specific IgG for convalescent serum evaluation

**DOI**: 10.1016/j.bios.2020.112572

**Classification**: 1

**Abstract**: Convalescent serum with a high abundance of neutralization IgG is a promising therapeutic agent for rescuing COVID-19 patients in the critical stage. Knowing the concentration of SARS-CoV-2 S1-specific IgG is crucial in selecting appropriate convalescent serum donors. Here, we present a portable microfluidic ELISA technology for rapid (15 min), quantitative, and sensitive detection of anti-SARS-CoV-2 S1 IgG in human serum with only 8 μL sample volume. We first identified a humanized monoclonal IgG that has a high binding affinity and a relatively high specificity towards SARS-CoV-2 S1 protein, which can subsequently serve as the calibration standard of anti-SARS-CoV-2 S1 IgG in serological analyses. We then measured the abundance of anti-SARS-CoV-2 S1 IgG in 16 convalescent COVID-19 patients. Due to the availability of the calibration standard and the large dynamic range of our assay, we were able to identify “qualified donors” for convalescent serum therapy with only one fixed dilution factor (200 ×). Finally, we demonstrated that our technology can sensitively detect SARS-CoV-2 antigens (S1 and N proteins) with pg/mL level sensitivities in 40 min. Overall, our technology can greatly facilitate rapid, sensitive, and quantitative analysis of COVID-19 related markers for therapeutic, diagnostic, epidemiologic, and prognostic purposes.

**Title**: The Bittersweet Effects of COVID-19 on Mental Health: Results of an Online Survey among a Sample of the Dutch Population Five Weeks after Relaxation of Lockdown Restrictions

**DOI**: 10.3390/ijerph17239073

**Classification**: 1

**Abstract**: Previous research shows that crises can have both negative and positive mental health effects on the population. The current study explored these effects in the context of the COVID-19 pandemic after relaxation of governmental measures. An online survey was administered among a representative sample of the Dutch population (n = 1519) in June 2020, ten weeks after the peak of COVID-19 had passed, and five weeks after restrictions were relaxed. Participants were asked about mental health, adverse events during COVID-19, and about any positive effects of the pandemic. Most participants (80%, n = 1207) reported no change in mental health since the COVID-19 pandemic. This was also the case among respondents who had experienced an adverse event. Protective factors of mental health were being male and high levels of positive mental well-being. Risk factors were emotional loneliness and the experience of adverse life events. Social loneliness was positively associated with stable mental health, stressing the importance of meaningful relationships. Note that 58% of participants reported positive effects of the pandemic, the most common of which were rest, working from home, and feeling more socially connected. In summary, 10 weeks after the start of the crisis, and 5 weeks after relaxation of the restrictions, most people remained stable during the crisis, and were even able to report positive effects.

**Title**: Is growth hormone insufficiency the missing link between obesity, male gender, age and COVID‐19 severity?

**DOI**: 10.1002/oby.23000

**Classification**: 1

**Abstract**: Evidence has emerged regarding an increased risk of severe acute respiratory syndrome coronavirus 2 (SARS‐CoV‐2) with worse prognosis in elderly male patients with obesity, and blunted growth hormone (GH) secretion represents a feature of this population subgroup. Here, a comprehensive review of the possible links between GH–insulinlike growth factor 1 axis impairment and coronavirus disease 2019 (COVID‐19) severity is offered. First, unequivocal evidence suggests that immune system dysregulation represents a key element in determining SARS‐CoV‐2 severity, as well as the association with adult‐onset GH deficiency (GHD); notably, if GH is physiologically involved in the development and maintenance of the immune system, its pharmacological replacement in GHD patients seems to positively influence their inflammatory status. In addition, the impaired fibrinolysis associated with GHD may represent a further link between GH–insulin‐like growth factor 1 axis impairment and COVID‐19 severity, as it has been associated with both conditions. In conclusion, several sources of evidence have supported a relationship between GHD and COVID‐19, and they also shed light upon potential beneficial effects of recombinant GH treatment on COVID‐19 patients.

**Title**: Two-dimensional echocardiography after return of spontaneous circulation and its association with in-hospital survival after in-hospital cardiopulmonary resuscitation

**DOI**: 10.1038/s41598-019-56153-z

**Classification**: 1

**Abstract**: This retrospective cohort study investigated the association between in-hospital survival and two-dimensional (2D) echocardiography within 24 hours after the return of spontaneous circulation (ROSC) in patients who underwent in-hospital cardiopulmonary resuscitation (ICPR) after in-hospital cardiopulmonary arrest (IHCA). The 2D-echo and non-2D-echo groups comprised eligible patients who underwent transthoracic 2D echocardiography performed by the cardiology team within 24 hours after ROSC and those who did not, respectively. After propensity score (PS) matching, 142 and 284 patients in the 2D-echo and non-2D-echo groups, respectively, were included. A logistic regression analysis showed that the likelihood of in-hospital survival was 2.35-fold higher in the 2D-echo group than in the non-2D-echo group (P < 0.001). Regarding IHCA aetiology, in-hospital survival after cardiac arrest of a cardiac cause was 2.51-fold more likely in the 2D-echo group than in the non-2D-echo group (P < 0.001), with no significant inter-group difference in survival after cardiac arrest of a non-cardiac cause (P = 0.120). In this study, 2D echocardiography performed within 24 hours after ROSC was associated with better in-hospital survival outcomes for patients who underwent ICPR for IHCA with a cardiac aetiology. Thus, 2D echocardiography may be performed within 24 hours after ROSC in patients experiencing IHCA to enable better treatment.