20th International Medical Congress of the Autonomous University of San Luis Potosí (UASLP): Infectious Diseases. June 09th-12th 2021: Abstracts

Case report/case series
All abstracts marked with * received commendations

Abstract ID: 3
Case report/case series
Subcategory: case report with learning outcome

Contrast between three possible etiological agents regarding a case of spondylodiscitis

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Background: In this case report we focused on integrating characteristics and diagnostic methods to distinguish between Staphylococcus aureus, Mycobacterium tuberculosis and Brucella sp. as possible etiologies of spondylodiscitis, this with the aim of reaching a precise diagnosis and being able to give an adequate management to the patient.

Clinical Presentation: 34-year-old female with a 16-year history of rheumatoid arthritis under treatment with DMARDs. The current illness began 10 days prior to hospitalization with joint pain, sudden onset of generalized phlogosis that did not yield to treatment with NSAIDs. Later she presented with a fever >38°C and a decrease in strength and reflexes in the lower limbs, disabling walking.

Management: A MRI is performed and destruction of vertebral bodies and involvement of intervertebral disc observed in T11-T12, the presence of a paravertebral abscess in T11-S1 also stands out. Two peripheral blood cultures were taken, both with the presence of gram positive cocci. An aspiration of the abscess was performed and a bone biopsy was taken for culture, where there was growth of gram positive cocci.

Discussion: We show the specific characteristics of three possible causative agents of spondylodiscitis (Table 1). The choice of these microorganisms was made according to the risk factors and the clinical presentation of the patient. The neuromotor damage in lower limbs accompanied by fever, forces us to do a MRI. If destruction of the vertebral bodies, involvement of the intervertebral disc and/or the presence of an abscess is found, a possible scenario of spondylodiscitis should be suspected. The performance of microbiological studies helps in the confirmation of the diagnosis and management.

Abstract ID: 21
Case report/case series
Subcategory: case report

Bacterial epiglottitis secondary to foreign body: presentation of a case

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Background: Acute epiglottitis in adults is a rare, potentially serious and often fatal entity caused by inflammation of the epiglottis, which may include some supraglottic structures. It mainly affects the pediatric population, between 3 and 6 years of age,
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in adults it generally presents as a less severe clinical picture. There are different causes of this disease, however its main etiology is an infection caused by H. influenzae type b, M. catarrhalis, K. pneumoniae and H. parainfluenzae. Any inflammation, irritation or allergic reactions can cause vascular congestion and local edema.

Case presentation: We present the clinical case of a 44-year-old male patient, with a sudden attack on the general state, intense odynophagia, hyper-salivation, dysphonia, dry cough, stridor and dyspnea. A clinical diagnosis of acute epiglottitis was made, also confirmed by direct visualization of the epiglottis and supraglottis, where it was nuanced and erythematous (“cherry red”). Our patient did not respond to empirical management and had a progressive deterioration, requiring an intervention by the otorhinolaryngology service.

Management: The management of an acute epiglottitis case is quite complicated, mostly in cases that it does not respond to empiric treatment. We performed a laryngoscopy the presence of a foreign body in the posterior commissure of the larynx was confirmed, which was extracted, culture samples were taken and according to our isolate, specific antibiotic therapy was given, with an adequate evolution and resolution of the symptoms.

Discussion: The patient with acute epiglottitis requires in-hospital management to carry out close monitoring of the airway and begin intravenous therapy with empirical antibiotic therapy. This pathology requires both diagnosis and timely treatment, to avoid possible complications, which can compromise the life of the patient.

Abstract ID: 23

Case report/case series
Subcategory: case report

Lymphedema and wound myiasis approach: a case report

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Background: Lymphedema is a localized form of tissue swelling resulting from excessive retention of lymphatic fluid in the interstitial compartment and caused by impaired lymphatic drainage. Lymphedema is classified as primary or secondary. It can also present myiasis, which is defined as an infestation of tissues and organs by Diphthera larvae (flies, mosquitoes) of the genus Dermatobia, which mainly affects humans.
**Case presentation**: A 26-year old female with a history of lymphedema and a diagnosis of major depression without treatment. Her skin complications of lymphedema were: lichenified, indurated, and acanthotic plaques with multiple annular ulcers, papillomatosis, and erosions with necrotic tissue scaling from the dorsum of feet to below her knees, also, concomitant myasis was presented.

She underwent multimodal treatment. Wound myasis was treated with lidocaine spray to enable larvae to be extracted from the skin and surrounding tissue. While, Versajet Hydro surgery System (VHS) was used to eliminate lichenification, necrosis, and devitalized tissue. In addition, the Multilayer Compression Bandage System (MCBS) and its derivatives were the cornerstones for the treatment of worsening lymphedema.

**Discussion**: Complications of lymphedema include skin infections and necrosis. Within skin infections, we can find myasis, which our patient, due to their risk factors, was presenting. Optimal management of contaminated wounds requires the removal of all necrotic and devitalized tissue without damaging viable structures.

**Conclusion**: Opportune diagnosis and treatment can avoid worsening lymphedema and its complications. With this case report, we diagnosed lymphedema and wound myasis based on the lesions’ clinical history and physical examination, we did not use morphological and molecular studies to analyze larva because it would not improve the clinical outcomes.

With this medical management, the patient achieved rapid clinical improvement.

**Abstract ID**: 26
**Case report/case series**
**Subcategory**: case report

**Approach to recurrent giant hepatic hydatid cyst: case report**

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**Background**: Hepatic hydatid cyst is a parasitic disease caused by *Echinococcus granulosus*. The infection occurs when the human eats eggs for *E. granulosus* in contaminated water; the most common location is in the liver (50–70%). The literature evaluates giant cyst when it measure is more than 10 cm diameter or long.

**Case presentation**: A 28-years old male who came to the emergency room for the Hospital Lomas San Luis International, for an abdominal pain in right upper quadrant for three weeks ago, severed with fever. The abdominal CT report evidence an abscess on the segments V, VII and VII by $149 \times 144 \times 111$ mm diameter.

**Management**: At first time a conservatory management was done with percutaneous drainage. In the process the patient had an anaphylactic shock, and outpatient management with dual management with albendazole and percutaneous catheter. Tree weeks later the patient presents an abdominal pain in right upper quadrant, vomit and fever, with a recurrence of hydatid cyst $80 \times 96 \times 40$ mm, with a positive culture for *E. faecalis*. It was performed an open surgery treatment with resection for segments V, VI, VII, VIII right hepatectomy and cholecystectomy. Fortunately, the patient had a favorable evolution.

**Conclusion**: The hydatid cyst management consists in pharmacologic treatment, percutaneous drainage and conservatory or radical treatment. The percutaneous drainage and albendazole has been use for dual therapy, by the way, in some could be recurrences and fatal complications.

**Abstract ID**: 26
**Case report/case series**
**Subcategory**: case series

**Deep cervical infection with mediastinitis: a case series**

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**Background**: Cervical infections include a group of severe and life-threatening diseases that spread along the planes of the fasciae, affecting the visceral neck spaces despite the use of antibiotics. One of the rare complications of this type of infection is mediastinitis (0.3–5%), which is also the most severe complication, with a mortality of 25–50%.

A series of three cases of patients with deep cervical abscesses complicated by mediastinitis is presented in this poster.
**Case 1**: 56-year-old male with a history of bacterial infection of the upper airways, complicated by Ludwig’s Angina and mediastinitis, managed with surgical drainage and antibiotics with adequate evolution.

**Case 2**: 21-year-old male, with a history of smoking, pulmonary tuberculosis and tooth extraction a week prior to the event, complicated with deep cervical infection and mediastinitis, required multiple surgical drains and management with Piperazilin-Tazobactam because of a methicillin-resistant *Staph. aureus*, with favorable evolution.

**Case 3**: 46-year-old female with a history of dental infection admitted with septic shock manifestations. Ludwig’s angina and mediastinitis were confirmed by CT scan, with torpid evolution after several surgical interventions (including decontarction and thoracotomy in addition to surgical drainage) and broad-spectrum antibiotics due to gram-positive cocci in culture (Piperazilin-Tazobactam/Vancomycin), progressing to refractory shock, multiple organ failure and finally death.

**Discussion**: Literature reports that the main causes of mediastinitis include odontogenic infections and retropharyngeal abscesses, the mean age of presentation is 36 years, being more common in men (86%). The microorganisms involved can be aerobic and anaerobic. The most commonly isolated microorganisms are *Streptococcus pyogenes* from the oral cavity, alpha-hemlytic *Streptococcus, Actinomyces spp.*, *Bacterioides spp.* and *Staphylococcus spp.*

The diagnosis includes image studies that show gas or intramediastinal collections.

**Abstract ID**: 32
**Case report/case series with a learning outcome**
**Subcategory**: case series with learning outcome

**Background**: Congenital syphilis (CS), is a significant cause of neonatal and fetal mortality, has increased in the last few years. The main cause is inadequate prenatal care. Neonates can be asymptomatic or develop multisystemic manifestations of syphilis at 2 years old.

**Objective**: To describe the clinical and biochemical characteristics of neonates with CS.

**Methods**: Retrospective case series study of neonates with CS in the “Hospital Central Dr. Ignacio Morones Prieto”, from 1 January 2018 to 1 June 2021. Clinical records were analyzed maintaining data confidentiality. Eligible criteria were biochemical diagnosis of congenital syphilis using VDRL and positive treponemal (TP) tests. Demographic characteristics from the mother and neonate were analyzed.

**Results**: In 3.5 years, 22 records were analyzed. The median maternal age was 21 years (14–39), the VDRL test 1:02–1:64 range and the mean TP syphilis test 27.26 ± 3.78. The median weeks of gestation were 39 (28–40.5), weight 2590 ± 699 grams and, 10 cases (45%) with low weight for gestational age. One case of abnormal hearing screening, and two with cerebral abnormalities. Associated diagnoses were hyperbilirubinemia 18.1%, early sepsis 18.1%, cholestasis 13.63%, TTN 13.2%. The VDRL ranged 1:02–1:64, mean TP syphilis 26.72 ± 3.98, elevated CRP 31.8%, thrombocytopenia 27.2%.

An increase in the rate of congenital syphilis per year was found: 2018 (rate 0.071 × 1000 NB), 2019 (rate 2.9 × 1000 NB), 2020 (rate 3.1 × 1000 NB) (Figure 1).

**Discussion**: Our results agree with the ones reported by Sánchez et al. in USA and with Noyola et al. in México, which presents an increase in the rate of 0.27% at delivery.

**Conclusions**: SC continues to be a public health problem. Mexican Guidelines need to be standardized to timely diagnose and treat syphilis in pregnancy and the newborn.

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**Congenital syphilis: a case series**

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*Clinical manifestations in an immunocompetent patient with Cryptococcal meningoencephalitis: case report and literature review*

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**Background:** Cryptococcal meningitis (CM) is an opportunistic central nervous system (CNS) infection caused mainly by Cryptococcus neoformans, an ubiquitous encapsulated fungus. Present in >90% cases of immunocompromised patients, it is a rare entity in immunocompetent patients. We describe a cryptococcal meningoencephalitis case in an immunocompetent pediatric patient and compare it with a review of the literature focusing on the clinical manifestations.

**Case presentation:** We present a case of a 13 year-old male-patient who came to the emergency department for a two-week history of frontal headache, fever, nausea, vomiting, limb weakness, decreased visual acuity and ataxia. Imaging studies showed no abnormality and he was discharged. He was referred to the unit for symptoms persistence with the addition of VI cranial nerve palsy, III cranial nerve abnormality, abnormal gait and neck stiffness. He had no personal or family history of any major pathologies. CSF analysis was performed and culture was taken; also, Gram Stain, Indian Ink and Cryptococcal antigen analysis were performed. CSF analysis is presented in Table 1.

The diagnosis of cryptococcal meningoencephalitis was made. Induction regimen was started with Amphotericin B and Dexamethasone was added.

**Discussion:** Cryptococcal infection in pediatric patients accounts for 2% of all cryptococcal cases, but could result in higher morbidity and mortality. The case presented has some shared findings with previous studies. Fever has been demonstrated to be the most common sign in HIV-negative patients, along with symptoms like headache, vomiting or nausea. Neck stiffness and altered mental status have been found in 30–40% of the cases. Similar to previous studies in China; specific symptoms, such as cranial nerve palsies have been found in almost 30% of immunocompetent patients, as well as decreased visual acuity; limb weakness was presented by 15% of the patients.

**Conclusion:** Together with other supporting reports, these findings suggest that CM is the main form of cryptococcosis in the immunocompetent child. Therefore, in pediatric patients who present with headache, fever, visual disturbances, the possibility of CM should be considered, for a rapid start of treatment and a better prognosis.
Abstract ID: 37
Case report/case series
Subcategory: case report with learning outcome

*Recurrent methicillin-resistant Staphylococcus aureus osteomyelitis: case report and literature review

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Case presentation: A 20-year-old male with a history of meningocele, congenital deformities of the lower limbs, left lower limb fracture, and right lower limb amputation was admitted to the emergency department of the Hospital Central “Ignacio Morones Prieto” (HCIMP). During a physical examination, a purulent discharge was observed from the left plantar region. The patient referred a three-month evolution and herbal treatment.

Background: Osteomyelitis is an inflammatory process of the bone caused by bacteria, mycobacteria, or fungi. The most frequently identified bacteria is methicillin-resistant Staphylococcus aureus (MRSA). We discussed the therapeutic alternatives and the role of the endemic MRSA lineage (ST5-II-t895) in antibiotic selection.

Management: The patient was admitted to the operating room for the left lower limb amputation and right stump remodeling. Four days later, he presented a bloody and purulent wound on the remodeled stump caused by MRSA (ST5-II-t895). The patient received antibiotic therapy with linezolid and piperacillin/tazobactam for 10 days. After the treatment, the remodeled stump was debrided. The patient was discharged due to clinical improvement.

Discussion: The proper selection of antimicrobial therapy is crucial in the treatment of musculoskeletal infections. Among the most commonly used antibiotics are vancomycin and teicoplanin, linezolid, and the combined use of rifampicin with tetracyclines, clindamycin, trimethoprim/sulfamethoxazole, and fluoroquinolones. The ST5-II-t895 MRSA lineage presents a high prevalence of resistance to clindamycin, erythromycin, and fluoroquinolones, and presents susceptibility to linezolid, tetracyclines, and trimethoprim/sulfamethoxazole. Vancomycin-resistant bacteria have not been described in this lineage. This case demonstrates the challenges in the management and treatment of MRSA osteomyelitis and the importance of knowing the endemic clones of MRSA in the selection of antibiotic therapy.

Abstract ID: 40
Case report/case series
Subcategory: case report

Ischiatic Osteomyelitis due to Meticillin-resistant Staphylococcus aureus: case report

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Background: Osteomyelitis is described as a progressive pathology that causes inflammatory, infectious...
and ischemic destruction of skeletal tissues with bone infarction. An incidence of 2-13 cases/100 thousand children is estimated, most of it affects the long bones. At the pelvic level, less than 10% are reported.

**Case presentation:** A 9-year-old patient comes to the emergency department. History of trauma to the knee in the previous month. She has a clinical picture of 15 days of evolution with asthenia, adynamia and sudden pain in the left pelvic region radiating to the posterior region of the thigh and knee; on the third day a fever of 40°C was added. During the physical examination, the left lower limb was found to be eutrophic, with antalgic position and limitation of movement. Treatment with clindamycin was started by 4/5 Kocher criteria and a blood culture was performed that was reported with growth of methicillin-resistant Staphylococcus aureus (MRSA). A scan was requested, which showed increased contrast medium uptake in the ischium and an MRI to confirm the inflammatory process and the presence of edema. Culture in bone and muscle MRSA was similar to isolation in blood, so the therapy was changed to vancomycin.

**Discussion:** As ischial osteomyelitis is an uncommon entity and as the patient had 4/5 Kocher criteria, the initial diagnosis was septic arthritis. When performing a bone gammagraphy and MRI, changes were found suggestive of osteomyelitis versus neoplastic process, in these cases it is necessary to perform a bone biopsy to send for culture and thus reach the definitive microbiological diagnosis.

**Conclusion:** The main diagnostic challenge of ischial osteomyelitis is its extreme rarity, in the world literature there are reports of single cases, or series of cases with a maximum reported of 10.

**Abstract ID:** 41
**Case report/case series**
**Subcategory:** case report

**Black fungus in India, is it really pathophysiological related to COVID-19?**

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**Introduction:** The development of secondary mucormycosis in patients with COVID-19 in India could be related to steroid intake, uncontrolled DM and/or traditional medicine beliefs. Mucormycosis is an opportunistic infection in patients with risk factors. The main agents, *Rhizopus spp.* and *Mucor spp.*, are ubiquitous saprophytic fungi. For diagnosis, histopathology, direct microscopy and culture are essential tools. Warning criteria for rhino-orbito-cerebral mucormycosis in patients with diabetes mellitus are cranial nerve palsy, diplopia, sinus pain, proptosis, periorbital swelling and palatal ulcer.

**Case presentation:** Man with DM and COVID-19. In treatment with steroids. He presents with mild proptosis, chemosis and ocular movement restriction. MRI shows important findings in the paranasal sinuses. *Rhizopus spp.* was found on sampling, the patient was treated with amphotericin B without debridement. He recovered at 4 weeks and was discharged on oral posaconazole.

**Management:** Successful treatment depends on timely diagnosis, reversal of predisposing factors (hyperglycemia, ketoacidosis, rapid reduction of glucocorticoid therapy), early surgical debridement of infected tissue and prompt initiation of high-dose systemic antifungal medication. Liposomal amphotericin B is the primary drug.

**Discussion:** Mucormycosis is not directly related to COVID-19 infection, but to risk factors for the disease, such as steroid intake, high prevalence of diabetes mellitus in India, and traditional medicine practices. Epidemiological studies are still needed to determine the exact cause of the increase in the number of cases in patients with COVID-19 in India.

**Abstract ID:** 44
**Case report/case series**
**Subcategory:** case report

**Approach of bilateral necrotizing fasciitis of the lower limbs in a patient with type 2 diabetes: a case report**

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**Introduction:** The development of secondary mucormycosis in patients with COVID-19 in
**Background:** Necrotizing fasciitis is a rapidly progressive infection involving the skin, subcutaneous tissue, and fascia, which causes widespread tissue necrosis and is associated with systemic illness.³,⁴ Mortality rate is considered high at 20–30%. A case of a patient who developed necrotizing fasciitis on both lower limbs will be described, including its approach, treatment, surgical management, and outcome.

**Case presentation:** A 69-year-old man presented to the emergency department complaining of a 22 days’ evolution swollen right lower limb as well as erythema, foul-smelling wound discharge, and severe pain. He has a history of poorly controlled type 2 diabetes and he suffered from scald burns in the legs 6 months prior to the current condition. On examination, he appeared disoriented, non-febrile, and hemodynamically stable. Lower right limb presented generalized edema, erythema, hyperthermia, crepitus, and severe pain to palpation, necrotic ulcers, bullae, and seropurulent foul-odored drainage in the medium and distal third of the leg. Left lower extremity with necrotic ulcers on the lower third, erythema, and hyperthermia with no crepitus. Laboratory findings report serious glycemic alteration, an increase of nitrogen compounds, no leukocytosis. Pelvic X-Ray showed subcutaneous gas which extends up to the groin region. With these findings, a diagnosis of necrotizing fasciitis was made.

**Management:** Broad-spectrum antibiotics were administered and the patient underwent above-knee amputation of the right lower limb and debridement of left leg necrotic tissue. Secondary stump reconstruction was performed 5 days after. The patient was discharged on day 9 due to good clinical evolution.

**Conclusion:** Prompt diagnosis is pivotal to receive early treatment. Delay in the recognition or early surgical management of these infections increases the risk of mortality. In this case, the patient’s poor metabolic control and the delay in hospital presentation, caused extended tissue damage, making imperative lower right limb amputation.

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**Abstract ID:** 44  
**Case report/case series**  
**Subcategory:** case report  
**Non-Hodgkin lymphoma and tuberculosis: case report**

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**Background:** Non-Hodking Lymphoma (HNL) due to its relationship with immunodeficiency may be preceded by chronic and inflammatory infectious diseases. Tuberculosis (TB) on the other hand is a chronic infectious disease which its presentation and reactivation can be promoted by immunodeficiency. The coexistence of LNH and TB is rare and even more so when LNH and TB are diagnosed simultaneously, i.e. TB is not preceded by LNH.

**Case presentation:** We will present a case where a 48-year-old patient with no history of importance came to the consultation presenting only fatigue and chronic astenia in addition to hepatosplenomegaly, when performing blood chemistry and blood biometrics, elevated inflammatory liver enzymes were observed in addition to pancytopenia data. Immunohistochemistry study was performed for possible lymphoma with positive results for CD20 he was also given a splenic biopsy with Ziehl Neelsen stain for BAAR positive and splenic tuberculosis with liver disease, the latter corroborated by imaging.

**Management:** It is currently being treated with 4 tablets of DOTBAL orally every 24 hours from Monday to Saturday until new indication in addition to Pyridoxine 50 mg orally every 24 hours without stopping and is undergoing chemotherapy by hematology.

**Conclusion:** The neoplasms that are most associated with tuberculous disease are pulmonary, nasopharyngeal, esophageal and hematic, the latter are few cases where they occur together.
Statistics mention that tuberculosis infection in hematologic neoplasms occurs more frequently during chemotherapeutic treatment and is scarce where the onset of tuberculosis appears and is simultaneous to the appearance of the neoplasm, as in this case. Given the medical literature that was consulted, the diagnostic and therapeutic management was adequate.
Abstract ID: 1

Original research

Subcategory: antimicrobial resistance

*Susceptibility profile and genes associated with resistance in clinical isolates of Acinetobacter baumannii from a hospital in Mexico

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Background: A. baumannii is an opportunistic pathogen related to serious hospital infections. In 2017, this microorganism was considered by the World Health Organization among the main drug-resistant microorganisms acquired in the hospital environment.

Objective: To evaluate the profile of susceptibility and genes associated with different mechanism of resistance to antibiotics in clinical isolates of Acinetobacter baumannii from a hospital in Monterrey, Nuevo León, Mexico.

Methods: Isolates of respiratory specimens were obtained during the period of 2019 and 2020, from the University Hospital “Dr. José E. González” in Monterrey, Nuevo León, Mexico. Isolates were identified using mass spectrometry and end-point PCR. The susceptibility profile was determined by microdilution in broth following the criteria established by the CLSI. Different mechanisms of resistance to antibiotics of enzymatic origin were detected, such as genes associated with resistance to carbapenems: KPC, IMP, VIM, NDM, OXA-23, -24, -51, -58 and genes associated with production of aminoglycoside modifying enzymes by endpoint PCR, and non-enzymatic resistance mechanisms, mutations in gyrA and parC genes (resistance to fluoroquinolones).

Results: 68% of the isolates presented drug resistance. High percentages of resistance were obtained for carbapenems (80–90%), fluoroquinolones (83%), aminoglycosides (78%) and β-lactams (40–80%). 27% were classified as multi-drug resistant while 73% as extensive drug resistant. No isolate presented the KPC, VIM, IMP or NDM genes, 31% presented the aph (3') VIa gene, 25% ant (2') Ia, 13% aph (3') IIa, 13% aac (6) Ib. For the parC gene, a trend was observed in the substitution of amino acids at position 7–10 (lysine-serine-serine-glycine-lysine/glutamate-glutamine-tryptophan-glutamine) as well as at position 32 (Serine/Leucine), while for the gyrA gene no mutation was observed.

Conclusion: The isolates presented multi-drug resistance, the genes OXA-51, OXA-24, aph (3') VIa, ant (2') Ia, aph (3') IIa and aac (6) Ib were detected, the parC gene presented substitutions throughout its genome. No isolate had the KPC, VIM, NDM or IMP genes.

Abstract ID: 5

Original research

Subcategory: antimicrobial resistance

Relationship of self-medication with antibiotic resistance in the Mexican population

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Introduction: Self-medication can be defined as the use of drugs without a medical prescription. The inappropriate use of antibiotics leads to antimicrobial resistance, this practice has become popular in recent years. Antibiotics represented a great advance in medical treatment, however their effectiveness has been diminished as an inevitable consequence ruled by natural selection.

Objectives: To analyze the perception of self-medication and resistance to antibiotics that the inhabitants of the Mexico and to identify which is the most used antibiotic without a prescription.

Methods: The population of this study was inhabitants of Mexico of both sexes. A cross-sectional, descriptive, observational, and prospective study was carried out. Descriptive statistics were used for qualitative and quantitative variables.

Results: 155 inhabitants of different states of Mexico were surveyed. Of the respondents
68.1% were women and 31.9% were men, the average age was 34.2. The most used antibiotic among those surveyed was amoxicillin (34.1%) followed by penicillin (10.3%). Of the causes for which they consumed antibiotics, they indicated the following: 32.5% common cold, 16.3% diarrhea, 24.4% urinary tract infection and 7.3% allergies.

**Conclusion:** Based on our results, we can conclude that the use of antibiotics continues to be a public health problem, due to the irresponsible use of antibiotics that the general population has, contributing to the resistance to antibiotics. The use of antibiotics has been restricted by the request for a medical prescription for its sale, however the respondents reported reusing those of family or friends.

**Abstract ID:** 34  
**Original research**  
**Subcategory:** new diagnostic methods  

**Fast track for the diagnosis and approach of infectious cellulitis by thermography**

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**Background:** Cellulitis is an infection of the skin and soft tissues that generally occurs after bacterial penetration through a gap in the skin barrier. Although it is a common pathology, it represents a diagnostic and therapeutic challenge. Previous clinical studies prove the efficacy of thermography in differentiating cellulitis and pseudocellulitis, mainly of the lower extremities. The objective of this study is to create a Fast track algorithm for cellulitis based on images obtained by thermography.

**Methods:** A sample of 5 patients with a diagnosis of cellulitis exclusively in 1 lower limb was used. 8 variables were considered: gender, age, days of evolution, etiology, temperature measured in the healthy leg and in the infected leg, ▲ T°, Images were taken by thermography of both extremities of each patient. Subsequently, the data obtained were grouped into 2 groups: lower limbs with cellulite and healthy lower limbs. Finally, a cross-sectional analysis of the results was carried out.

**Results:** A mean temperature of the affected side of 33.54°C was found in comparison with the healthy side of 30.94°C, without being statistically significantly, as it is a small sample, verifying the tendency to the difference in temperature in the contralateral part. There is a difference in temperature between the infected side and the healthy side of 2.6 (SD 0.9) with a p = 0.02, showing that the temperature difference when the two sides are compared and a difference (delta) is created is significant. This procedure is performed with the FLIR tool available in software with real-time analysis.

**Conclusions:** With this we can conclude that the difference between the infected skin of a limb with healthy skin can be observed in infrared thermography, so the sample would have to be increased and more variables included to standardize and validate the diagnostic tool.
Literature review

All abstracts marked with * received commendations

**Abstract ID: 2**

**Literature Reviews**

**Subcategory: COVID-19**

*Coinfection by SARS-CoV-19 and dengue virus. A diagnostic challenge*

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**Introduction:** Coronavirus disease (COVID-19) is caused by the new virus SARS-CoV-2 or “severe acute respiratory syndrome coronavirus 2”. On 11 March 2020, the World Health Organization (WHO) classified the disease as a pandemic. Currently the world must deal with other communicable and non-communicable diseases that occur in the population and the situation becomes complex especially in those regions where infections caused by arboviruses such as dengue virus are prevalent.

**Objective:** To identify through a systematic literature review the most frequent clinical presentation of coinfection by SARS-CoV-2 and dengue virus and to determine the differential signs and symptoms between both infections to make a correct and timely diagnosis.

**Methods:** We developed a search strategy including MeSH terms and keywords: (Severe acute respiratory syndrome coronavirus 2 (MeSH) AND Flavivirus infections (MeSH) AND Coinfection (MeSH) AND Diagnosis (MeSH) OR (COVID-19 AND Dengue Fever) (word key) and reviewed published studies in databases and metasearchers.

**Results:** COVID-19 and dengue coinfection have a similar clinical presentation, comparing the frequency in which the symptoms of COVID-19 and coinfection present. We observe that the most frequent manifestations in both diseases are fever, cough, dyspnea, myalgia and fatigue (Figure 1). On the other hand, there are symptoms that help to differentiate diagnosis. For example, in dengue fever it is more common to present anorexia, retro-orbital pain, petechiae, gingivorrhagia and lymphadenopathy. While in

![Figure 1. Percentage of signs and symptoms presentation in patients with mono infection and coinfection of SARS-CoV-2 and dengue virus.](image-url)
COVID-19 dysgeusia, anosmia and chest pain are shown as differential symptoms (Figure 2).

Conclusion: The continuous development of knowledge about COVID-19 has shown us that the clinical and biochemical manifestations of the disease are very similar to those that occur in arbovirus infections, especially in disease caused by the dengue virus.

Abstract ID: 4
Literature review
Subcategory: diagnosis and treatment of infectious diseases

Challenges in the diagnosis and treatment of schistosomiasis

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Background: Schistosomiasis is a parasitic disease caused by five species of trematodes of the genus Schistosoma. When acquired, the clinical picture depends on the species and the parasite load. Some individuals remain asymptomatic during the acute phase, while others experience nonspecific clinical manifestations that compromise the diagnosis. On the other hand, some people develop intestinal or urogenital complications during the chronic phase that difficult the treatment.

Objective: To identify the challenges in the diagnosis and treatment of schistosomiasis.

Methods: We conducted a literature review in PubMed, looking for clinical trials, clinical practice guidelines, reviews, and systematic reviews that included the words “Bilharziasis” or “Schistosomiasis” and “Approach” or “Diagnosis” or “Management” or “Treatment.” We limited the search results to English and Spanish, reviewed the abstracts, and selected the references according to the study’s objective.

Results: The diagnosis is made considering the epidemiological background, identifying the clinical manifestations, and carrying out laboratory studies, which depend on the phase of the disease. Parasitological studies are the method of choice to detect schistosome eggs in feces or urine, while serological techniques allow the identification of the host’s immunological reaction and estimate the severity of the disease. Treatment is limited to the use of praziquantel, which scheme depends on the characteristics of the patient and the causative agent. However, they do not eliminate the immature forms of the parasite, and other alternatives have not been validated.

Discussion: Schistosomiasis is a public health problem in Africa, Asia, and America, where the scarcity of diagnostic tests prevents it from being diagnosed promptly, and the lack of therapeutic alternatives increases the risk of recurrence. Investing in the development of rapid tests and effective compounds is imperative for global health.

Abstract ID: 7
Literature review
Subcategory: diagnosis and treatment of infectious diseases

Advances in the treatment of sleeping sickness

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Background: Sleeping sickness is a parasitic disease caused by *Trypanosoma brucei gambiense* and *Trypanosoma brucei rhodesiense*. When acquired, it evolves in two phases: the hemolymphatic phase that causes nonspecific manifestations and the meningoencephalic phase that causes neuroendocrine, psychiatric, and somatosensory alterations. Treatment consists of administering antitrypanocides, DNA synthesis inhibitors, sulfonated naphthylureas, or sulfonated organic salts, depending on the phase.

Objective: To identify advances and setbacks in the treatment of sleeping sickness.

Methods: We carried out a bibliographic review in PubMed, looking for clinical trials, clinical practice guidelines, reviews, and systematic reviews that included the words “Sleeping sickness” or “African trypanosomiasis” and “Management” or “Treatment.” We limited the results to English and Spanish, and subsequently, we reviewed the abstracts and selected the references according to the study’s objective.

Results: Drugs that have been used to treat sleeping sickness cause severe adverse effects and have regimens that make their administration difficult. Additionally, resistance is reported with increasing frequency, which compromises the progress made to eliminate it as a public health problem and interrupt its transmission. During the last decades, compounds with antitrypanocidal activity have been sought to deal with this problem, which led to discovering a drug that can be used in any phase of the disease, which is administered orally and causes few adverse effects.

Discussion: The discovery of fexinidazole is a success story that shows that investing in neglected tropical diseases, beyond being an ethical and moral commitment, is an affordable and feasible strategy to improve the quality of life of those who suffer from it and, at the same time, to combat a problem that threatens global health.

Abstract ID: 8

Literature review

Subcategory: diagnosis and treatment of infectious diseases

Challenges in the diagnosis and treatment of leishmaniasis

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Background: Leishmaniasis is a parasitic disease caused by more than 20 species of protozoa of the genus *Leishmania*. Its clinical spectrum is broad, being able to develop an asymptomatic profile that remains latent or a symptomatic one that manifests itself through lesions on the skin, membranes, or viscera, in the cutaneous and mucocutaneous forms, lesions that destroy the tissues develop, while in the visceral form, the spleen, liver, and bone marrow become inflamed with the consequent organic and functional compromise.

Objective: To identify challenges in the diagnosis and treatment of leishmaniasis.

Methods: We conducted a literature review in PubMed, looking for clinical trials, clinical practice guidelines, reviews, and systematic reviews that included the words “Leishmaniasis” and “Approach” or “Diagnosis” or “Management” or “Treatment.” We limited the results to English and Spanish, and subsequently, we reviewed the abstracts and selected the references according to the study’s objective.

Results: The diagnosis is made through parasitological studies, molecular methods, and serological techniques. However, it is different for each of the forms, so it is necessary to know when, where, and how to search. Treatment consists of the administration of meglumine antimoniate, sodium stibogluconate, miltefosine, paromomycin, or amphotericin B, depending on the form of the disease, the *Leishmania* species, and the comorbidities of the host. None of them can eliminate the causative agent by themselves, so it is necessary to have an optimal immune system response. In addition, its adverse effects condition the abandonment of treatment.

Discussion: Timely diagnosis and adequate treatment are essential to reduce the morbidity and mortality of those who suffer from it.
However, they often represent a challenge for health professionals who do not know it and health systems unprepared to combat it.

Abstract ID: 9
Literature review
Subcategory: diagnosis and treatment of infectious diseases

New treatment schemes for Chagas disease

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Background: Chagas disease is a parasitic disease caused by Trypanosoma cruzi. When it is acquired, most people remain asymptomatic, which prevents it from being diagnosed promptly, when it evolves, cardiac and/or gastrointestinal complications develop, increasing the morbidity and mortality of those who suffer from it. Treatment consists of administering prolonged regimens of benznidazole or nifurtimox, which cause multiple adverse effects.

Objective: To identify effective and safe alternatives to treat Chagas disease.

Methods: We carried out a bibliographic review in PubMed, looking for clinical trials, clinical practice guidelines, and systematic reviews that included the words “Chagas disease” or “American trypanosomiasis” and “Management” or “Treatment.” We limited the results to English and Spanish, and subsequently, we reviewed the abstracts and selected the references according to the study’s objective.

Results: During the last decades, therapeutic alternatives have been sought, including antiarrhythmic drugs, ergosterol synthesis inhibitors, purine synthesis inhibitors, nitroimidazoles, and supplements. Although most have been shown to have activity against the causative agent of the disease, their effectiveness has been lower than that of benznidazole. Therefore, new doses, regimens, and combinations of the therapeutic standard have been tested with promising results.

Discussion: Historically, trypanocidal drugs have not been well received by those who require them or by those who prescribe them due to the adverse effects that they cause and the poor therapeutic adherence that they condition. However, it has been shown that the problem lies in the duration of the treatment regimens and not in the nature of the drugs, which modifies the paradigm and prolongs the life of benznidazole while developing new compounds with more effective and safer profiles.

Abstract ID: 10
Literature Review
Subcategory: Diagnosis and treatment of infectious diseases

Approach in the diagnosis and treatment of community acquired pneumonia: a literature review

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Background: Every year in USA occur more than 5 million cases of Community Acquired Pneumonia (CAP). Due to its high incidence it is important that the physician know how to approach a patient with CAP.

Objective: To evaluate the diagnosis of CAP and the following treatment according to CURB-65 criteria in the hospital or in the Intensive Care Unit.

Methods: We conducted a review of the literature available in PubMed and Google Scholar following the MeSH terms and keywords “CAP”, “Diagnosis”, “CURB-65” and “Treatment”.

Discussion: The diagnosis of CAP should be considered by the findings in the clinical story and physical exploration of: Acute onset of fever, chills, cough (may be describe as productive), fatigue, smoking history or underlying lung disease. For imaging a chest radiography is indicated. The radiography may show characteristic infiltrate patterns of different organisms. Up to 12–15% of the patients may have normal radiographies, in this case should be discard clinically other diseases, and clinical diagnosis of pneumonia should be considered. The indication of a tomography for the diagnosis of CAP still in debate. It may be reasonable in some cases to consider a PCR and a Procalcitonin testing to differentiate between a viral or bacterial cause.
To determine if a CAP should be treated in home, in the Hospital or in the Intensive Care Unit (ICU) the PSI, CURB-65 criteria were developed. The treatment for bacterial CAP is usually empirical and should consider the most common drug resistant pathogens (*Staphylococcus aureus*), for patients without comorbidities is recommended a macrolide or doxycycline.

- For patients with comorbidities is recommended a combination therapy, Amoxicillin/clavulanate or a cephalosporin plus a macrolide or doxycycline or respiratory fluoroquinolone
- For patients on a medical floor recommended a Beta-lactam plus macrolide
- For patients in UCI is recommended Beta-lactam plus a macrolide or a fluoroquinolone
- For methicillin-resistant *Staphylococcus aureus* Vancomycin or linezolid

**Conclusion:** In order to avoid fatal complications for the patient and antibiotic-resistant, is really important that the physician knows the bases of how to diagnostic and treat the CAP.

**Abstract ID: 11**
**Literature review**
**Subcategory: antimicrobial resistance**

**Proposal model for the management of an outbreak of ventilator-associated pneumonia caused by acinetobacter baumannii resistant to antibiotics**

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**Background:** *Acinetobacter baumannii* (AB) is an agent responsible for Ventilator Associated Pneumonia (VAP). It is considered as a leading cause of Healthcare Associated Infections (HAI) and an antibiotic resistant pathogen of critical priority and global importance. Local epidemiology, patient characteristics, and clinical responses determine therapeutic decision-making. There are no standardized guidelines that determine the most effective strategy for the prevention and management of an outbreak of antibiotic-resistant AB VAP in a critical care setting.

**Objetives:** To establish the key points of the proper management of VAP caused by AB resistant to antibiotics, presenting a propositional model.

**Methods:** We carried out a search in the PubMed and Google Scholar databases using the following keywords: Acinetobacter baumannii, Pneumonia, Ventilator-Associated, Disease Outbreaks, Drug Resistance, Multiple, Bacterial, Drug therapy, Disease management.

**Discussion:** In the event of an outbreak of VAP due to AB, preventive or control measures focus on hygiene (isolation and hand washing), education (supervision of procedures and antibiotic prescription) and surveillance (surveillance and environmental cultures). Research measures focus on microbiological identification and epidemiological analysis, where Molecular Methods (especially Mass Spectrometry) offer a faster and more accurate alternative. Regarding drug treatment, initially empirical antimicrobial therapy is guided by the Gram stain and the susceptibility patterns of the geographic area. It was found that in AB resistant to first-line antibiotics, polymyxins (eg. colistin) are considered the drug of choice in combination with other antibiotics, highlighting their association with sulbactam, which has a higher cure rate compared to monotherapy. Tetracyclines (eg. tigecycline) are the last therapeutic resource.

**Abstract ID: 12**
**Literature review**
**Subcategory: COVID-19**

**Global immunization against SARS-CoV-2**

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**Background:** On 31 December 2019, in Wuhan, China, a group was reported with a disease similar to pneumonia, now called “Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2)” or better known as Coronavirus 2019 (COVID-19). On January 4 the WHO reported that there was a cluster of pneumonia cases, with no deaths, in a single region after the first death was reported. Approximately after a year we have different vaccine options such as Pfizer, a vaccine created with RNA-BNT162 encapsulated with lipids, the AstraZeneca vaccine was formulated through the genetic modification of a chimpanzee adenovirus, another vaccine is Moderna, which was created with lipid-encapsulated 1273 messenger RNA. All vaccines have been approved and
shown to produce antibodies and cytotoxic T cells in humans.

**Objectives:** Conduct a desk research on the vaccines that have been approved for use throughout the world and that are being used in Mexico.

**Methods:** Through the Pubmed platform we find the information used. The keywords were: Vaccines COVID-19, Vaccination, Worldwide vaccination, COVID-19 vaccine strategies, COVID-19 vaccination impact.

**Results:** The vaccines used in Mexico are from Pfizer-BioNTech, AstraZeneca, Cansino Biologic, Sputnik, and Covax. As of June 5, 2021, Mexico has administered a total of 34.5 million doses and there is 14.1 million fully vaccinated people.

**Discussion:** Currently, only 5.9% of the world population has been vaccinated. Rich countries are the ones that vaccinate the most because they have the power to produce vaccines, on the other hand there are countries that depend on others or organizations. In order to reach the goal of global vaccination, global cooperation and the approval of vaccines are necessary that would generate a great advance to combat the pandemic.

**Abstract ID:** 14

**Literature Review**

**Subcategory:** COVID-19

**SARS-CoV-2 and neuroinflammation**

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**Introduction:** SARS-CoV and SARS-CoV-2 viruses bind to the ACE2 receptor, present mainly in cells of the lower respiratory tract, although other cells such as neuronal and glial also express it. The presence of ACE2 and a transmembrane protease serine 2 (TMPRSS2) are needed for viral entry. Neurological complications occur in severe SARS-CoV-2 and the probability of having neuronal degeneration or cerebral edema is high. Some of the most common complications are smell and taste disorders, encephalitis, acute necrotizing hemorrhagic encephalopathy, Guillain-Barré syndrome, and cerebrovascular complications. (Figure 1)

**Methods:** We searched the following databases and journals in the English and Spanish languages over the period 2019–2021: PubMed, ElSevier, The Lancet, NCBI and Frontiers. The following

![Figure 1. Physiopathology of SARS-CoV-2 infection.](image)
keyword were used to generate the search: COVID-19 or SARS-CoV-2 and neurodegeneration, neuroinflammation, ACE2, encephalopathies, cytokine storm, protein S, neuronal cells, neurological complications, neurological manifestations.

**Results:** There is evidence that such infection will lead to neuronal death and tissue damage that can compromise the life of the patient. The inflammasome is activated, awakening the innate and adaptive immune response. During SARS-CoV-2 infection, thrombo-inflammation is relevant since it has been identified as the mechanism responsible for a cytokine storm.

There is evidence that neuroinflammation produced by the cytokine storm favors the progression of neurodegenerative and neuropsychiatric diseases. Encephalopathies and encephalitis are the two of the most frequent neurological complications associated with COVID-19. There is also a dissemination mechanism towards the Nervous System, in which the infection can enter through the cribriform plate and the olfactory bulb and finally its dissemination through synaptic transfer.

**Conclusion:** However, the mechanism of attack at the brain level is still unknown, so more research and studies are required in this regard. On the other hand, patients may be more susceptible to triggering neurological disorders due to genetic or epigenetic antecedents.

**Abstract ID:** 15
**Literature Review**
**Subcategory:** COVID-19

**Clinical manifestations of cardiovascular complications resulting from SARS-CoV-2 infection**

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**Introduction:** Coronavirus disease 2019 (COVID-19), caused by a strain of coronavirus known as Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), has caused a pandemic. CoVid-19 produces an inflammatory disease causing high levels of morbidity and mortality that is accompanied by cardiac conditions. These complications include diseases such as acute coronary syndrome (ACS), heart failure, coagulation abnormalities, arrhythmias, and venous thromboembolism (VTE).

**Objective:** This study aims to describe the cardiac sequelae following Covid-19 infection and their clinical relevance.

**Methods:** A systematized review was carried out in PUBMED, ProQuest, and EBSCO. The keywords used were: thrombosis, comorbidity, COVID-19, SARS-CoV-2, cardiovascular disease, myocardial injury, arrhythmia.

**Results:** Early studies suggest that coronavirus disease 2019 (COVID-19) is associated with a high incidence of cardiac arrhythmias after infection (6–17%). Arrhythmias are most often associated with patients admitted to the intensive care unit. ACS has been recorded even in the absence of substantial systemic inflammation. Additionally, acute myocardial injury and ACS triggered by COVID-19 can also aggravate pre-existing heart disease or lead to contractile dysfunction. Similarly, elevated D-dimer levels, moderately lowered platelet counts, and slightly prolonged prothrombin time are coagulation abnormalities in Covid-19 patients that typically do not meet the criteria for disseminated intravascular coagulation.

**Discussion:** Cardiovascular complications after SARS-CoV-2 infection are of great relevance since the sequelae that these diseases present are poorly understood and can increase comorbidities in individuals even if they are no longer carriers of the infection.
**Background:** SARS-CoV-2 enters the host’s cell through the Angiotensin-Converting Enzyme 2 (ACE2) as well as the CD9 proteins. Meanwhile, the cell’s mitochondria release free radicals and DAMPs activating HIF-a/Sirtuin causing a hyperinflammatory state. Severe presentations can evolve into Cytokine Storm. Low levels of ABO antibodies have a higher risk of infection, specifically, anti-A because it inhibits ACE2’s expression. O groups are the least susceptible to develop thrombosis, vascular and
respiratory dysfunction, but when infected they require more oxygen.

**Objective:** Correlate blood groups and COVID-19 severity.

**Methods:** Meta search engines such as PubMed were used to analyze the literature regarding our review.

**Results:** Evidence suggests that the severity of the infection is influenced by blood groups and other comorbidities, as these factors interact with various immune-system molecules. Also, the severity associates with the specific immunological pathway the virus activate mainly on cells with an ACE-2 receptor

**Discussion:** Further investigation is needed to fully comprehend the immunologic and molecular mechanisms that differ between blood groups and result in different manifestations of COVID-19. Identifying these factors in a patient may lead to opportune management, being able to prevent the disease before it becomes life-threatening.

**Conclusion:** Blood groups have shown epidemiological importance on account of the variability in risk of infection and severity throughout the different blood types. Blood types O and RH (-) are referred to as the least susceptible to COVID-19 infection, even considered protective factors, compared to other blood types, due to the presence of anti-A antibodies that downregulate the expression of ACE2. On the other hand, A groups are the most likely to develop complications, higher mortality, and the need for mechanical ventilation.

**Abstract ID:** 17
**Literature review**
**Subcategory:** COVID-19

**Broadly neutralizing antibodies: unearthing the universal vaccine conundrum**

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**Background:** Owing to the epidemiologic relevance of RNA virus-induced respiratory tract infections and their historical role in epidemic outbreaks, the pursuit of novel vaccine technologies capable of granting immunity both from existing and future variants has long been coveted by the medical community. These so-called “universal vaccines” are especially promising for the management of highly antigenically diverse and highly transmissible viruses such as Influenzavirus and Coronavirus.

**Objective:** To stress the relevance of the future application of bNAb technology in the development of universal vaccines for Influenzavirus and Coronavirus.

**Methods:** Metasearch engines such as PubMed were used to compile papers apropos of this review’s topic.

**Discussion:** The control of Influenzavirus and Coronavirus outbreaks has been a major challenge due to their broad antigenicity and the major zoonotic spillover of variants. However, Broadly Neutralizing Antibodies’ (bNAbs) may have the key for developing a universal vaccine. bNAbs were discovered in 1991 in HIV positive, long-infected patients. bNAbs were produced as the result of lengthy co-evolution of Human Immunodeficiency Virus 1 (HIV-1) and host’s immune response. Since then, many breakthroughs have been made in the bNAb field, such as further understanding of antibody somatic hypermutation, germline targeting, and stable immunogen production that mimics naive viral proteins. Thereafter, discovery of bNAbs in patients immunized with Influenza vaccines as well as in SARS-CoV-2 infected patients revealed conserved epitopes throughout variants and strains of this viruses, making feasible for the first time the development of universal vaccines.

**Conclusions:** Hence, manipulation of bNAbs and identification of conserved regions in these viruses are currently on the leading edge towards developing auspicious universal vaccines for Influenzavirus and Coronavirus.
Abstract ID: 19  
**Literature review**  
**Subcategory:** antimicrobial resistance

**Pathogenic mechanism associated with Pseudomonas aeruginosa MDR in the urinary tract infection**

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**Background:** Worldwide there have been numerous nosocomial and urinary tract infections, usually caused within the hospital setting by multiple multi-resistant bacteria, among which is Pseudomonas aeruginosa being the most frequent and with the worse diagnosis because of their complex adaptation system, pathogenic mechanisms, and high resistance before antimicrobials, thus making it difficult to treat it. We analyzed pathogenic mechanisms, genes involved in the resistance of Pseudomonas aeruginosa, and the best alternatives for treatment, along with micro environmental factors that favor urinary infections.

**Objectives:** To analyze pathogenic factors associated with urinary tract infections by Pseudomonas aeruginosa.

**Methodology:** A systematic literature search was conducted through the use of PUBMED. The keywords were: Pseudomonas, Pathogenicity, Resistance, Urinary infection.

**Results:** The seek for therapeutic alternatives against multi-resistant bacteria strains has highlighted the use of bacteriocins, microcins, probiotics, thiopeptides, and others. The Pseudomonas aeruginosa creates a biofilm when it adheres to the tissue surfaces, allowing the production of immunoglobulin G and gives the capacity of joining antimicrobials, preventing antimicrobial peptides to reach microorganisms and giving rise to chronic co-infections and more resistance. It has been proved that the pH and osmolality of urine in 200–300 mOsmol/l increase its pathogenicity and resistance to phagocytosis.

Abstract ID: 20  
**Literature review**  
**Subcategory:** COVID-19

**Management of the oncologic pediatric patients in the COVID-19 pandemic**

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**Background:** According to published reports worldwide, the reported cases of COVID-19 in pediatric patients represent less than 2%, and most of the reported cases had immunological diseases or malnutrition. Since April 2020, UK pediatricians have been warning of the emergence of a rare-onset multisystemic inflammatory syndrome after being ill with COVID-19. Despite knowing it’s characteristics, the pathogenesis has not yet been clarified, which is especially important for the development of adequate therapeutic techniques.

**Objectives:** To determine the impact of the COVID-19 pandemic on pediatric cancer patients.

**Methods:** Databases such as PubMed were used to extrapolate relevant information from the literature to write this systematic review.

**Results:** Although children represent the minority of COVID-19 cases, cancer patients due to immunosuppressive treatments, pose a high risk of contracting an infectious disease. However, they have acquired the habit of taking preventive measures to avoid infectious diseases, making their contagion less likely. Nevertheless, patients who contract this disease could have fatal consequences.

**Discussion:** There is an unknown and unexplored impact in the long term due to lack of resources or preventive health measures of hospitals that delay the treatment of patients.

**Conclusions:** COVID-19 in pediatric patients occurs rarely and its clinical manifestation has
important variations comparatively with adult patients. Clinical similarity to Kawasaki disease has been noted in pediatric patients, although its pathogenicity has not been stated. Pediatric cancer patients may be at higher risk for COVID-19 due to their ongoing immunosuppression. Despite this, they’ve learned hygiene habits that could be enough to prevent the infection, if they are not, they could have deadly consequences.

Abstract ID: 22
Literature Review
Subcategory: COVID-19

Physiopathology of cardiovascular complications due SARS-CoV-2 infection

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Introduction: COVID-19 causes an inflammatory disease with high levels of morbidity and mortality accompanied by cardiac conditions, such as myocardial injury, acute myocardial infarction (MI), myocarditis, arrhythmias, and venous thromboembolism (VTE). ACE2 is a regulator of angiotensin 2 (AG-2) production, the virus is known to bind to angiotensin-converting enzyme 2 (ACE2), leading to inflammation, fibrosis and vasoconstriction.

Methods: A systematic review was performed using PUBMED and MedScape, the BioRender platform was used to create the images. The keywords used were: thrombosis, comorbidity, COVID-19, SARS-CoV2, cardiovascular disease, myocardial injury, and arrhythmia.

Background: Cardiovascular complications following SARS-CoV-2 infection are associated with an increased incidence of arrhythmias (6–17%) as well as myocardial damage whose mechanism of injury is: systemic inflammation, direct cardiomyocyte damage, interferon-mediated immune response, myocardial interstitial fibrosis, exaggerated cytokine response by type 1 and 2 helper T lymphocytes, coronary plaque destabilization, and hypoxia.

Results: SARS-CoV-2 can generate endothelial injury by altering its function, causing changes in the angiotensin II/AT1 axis and the host inflammatory response, leading to pericyte injury and endothelial dysfunction at the capillary level compromising the microcirculation. In addition, an exaggerated cytokine response by type 1 and 2 helper T lymphocytes results in myocardial injury. A reduced GLUT1 to NHE1 ratio has been described in patients who are subsequently intubated and/or die. The molecular components of this disease are of great relevance for further studies.

Figure 1. Attachment and proliferation of the virus in the pulmonary parenchyma, the activation of the innate immune response and its consequences.
Conclusions: Cardiovascular complications after SARS-CoV-2 infection are of great relevance, as the chronic sequelae they present are poorly understood and may increase the comorbidities of individuals already cured by the infection.

Abstract ID: 24
Literature review
Subcategory: COVID-19

Metabolic syndrome as a comorbidity in patients with COVID-19

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Background: COVID-19 is a new virus, it has brought uncertainty and big challenges worldwide and the studies about it are recent and limited. This virus is highly contagious and is transmitted through direct or indirect contact with infected people through secretions such as saliva or respiratory droplets. This virus causes severe acute respiratory syndrome, and everyone is susceptible to it. Nevertheless, there are some comorbidities associated with high mortality, some of which include metabolic syndrome.

Objective: Correlate the metabolic syndrome and COVID-19 severity and to understand its association with a high mortality.

Methods: We conducted an observational descriptive study using metasearch engines such as PubMed. We analyzed and compared literature regarding the metabolic syndrome and COVID-19 association.

Results: Literature suggests that patients suffering from metabolic syndrome are more prone to COVID-19 infection and progression due to having chronically activated the RAAS and having a deficient immune response.

Discussion: The virus enters the cell through the ACE II receptors, which are part of the RAAS. An increase in ACE II activity can shift the balance of the pathway to the Angiotensin 1–7 axis leading to disease and inflammatory protection. An excessive or abnormal fat tissue accumulation can alter the innate and adaptive immune responses, leading to patients more prone to infection and less responsive to treatment. Because of the immune system dysfunction, the systemic inflammatory status is influenced by intense pro-inflammatory cytokine secretion, increasing the chance of a cytokine storm.
**Conclusion:** Based on the information we can conclude that individuals with the metabolic syndrome tend to be more susceptible to COVID-19 infection and progression. These patients show abnormal RAAS activation, high ACE II levels, low Ang (1–7) amounts, decreased antiviral immunity, and the presence of lipid deposits in large airways, which potentially act as viral reservoirs in the heart and lungs.

**Discussion:** The lung-gut axis has a big influence in the severity of the symptoms caused by the SARS-CoV-2, both the respiratory and gastrointestinal symptoms. This is because this axis acts in a bidirectional way, involving directly the gastrointestinal and the respiratory systems. This is the reason we conclude that if a patient has a healthy microbiota, the disease is more likely to be light or medium light, but if the patient doesn’t have a healthy microbiota, the disease is more likely to be severe.

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**Abstract ID: 25**  
**Literature review**  
**Subcategory: COVID-19**

**Implications of intestinal infection by SARS-CoV-2 and its correlation with dysbiosis and the gut-lung axis**

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**Background:** SARS-CoV-2 is a respiratory virus, and we would expect the symptoms to be directly associated with the respiratory system. Nevertheless, within recent investigations, scientists have observed that most of the patients with COVID-19 have had gastrointestinal manifestations such as: gastroenteritis, diarrhea, vomit, nausea, and stomachache.

**Objectives:** The main objective is the understanding, through the physiopathology, of SARS-CoV-2 and the lung-gut axis, also the relation that exists between the level of gastrointestinal dysbiosis in patients infected with SARS-CoV-2 and the influence of microbiota.

**Methods:** Through the PubMed platform and Google Scholar, we found the reviewed articles. The key words used were: gut-lung axis, dysbiosis, ACE2 and RAAS.

**Results:** It’s been demonstrated the relation between SARS-CoV-2 and dysbiosis of gastrointestinal microbiota, being this the responsible of the severity of the COVID-19. Also the ACE2 acts as a receptor for de SARS-CoV-2 to decrease its presence in the gut giving as a result inflammation process, vasoconstriction and fibrosis thanks to the reduction of the protective barrier increasing the ACE levels that change RAAS generating symptoms like: gastroenteritis, diarrhea, vomit, nausea, and stomachache.

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**Abstract ID: 35**  
**Literature review**  
**Subcategory: antimicrobial resistance**

**Coinfections and antimicrobial resistance; discovering positive and negative implications during COVID-19 pandemic**

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**Background:** The clinical spectrum of SARS-CoV-2 infection that caused the epidemic appears to be wide since asymptomatic infection to severe viral pneumonia with respiratory failure and even death. Despite its viral nature antibiotics are prescribed frequently to patients, largely due to suspected bacterial co-infections. Among the responsible factors of antimicrobial resistance: Overuse of Antibiotics, Underuse, and Misuse of Antimicrobials, Poor Infection Control Practices, International Travel, Poverty, etc. Understanding patterns and predictors of antibiotic prescribing helps to identify opportunities for interventions, target antibiotic stewardship strategies to improve antibiotic use.

**Objective:** To determine the impact and influence of the SARS-CoV-2 and its co-infections on the current antimicrobial resistance situation.

**Methods:** We conducted a review using PubMed, the search yielded 82 citations where 66 failed to meet the inclusion criteria and 16 were included in this review.

**Results:** Co-infection rates for SARS-COVID-2 have been estimated between 6.1% and 8.0%, 72% were treated with antibiotics, of whom 15% received anti-fungal treatment.

**Discussion:** Experts in the topic argue that COVID-19 will result in an increase in
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antimicrobial resistance rates (AMR). Patients admitted during the pandemic are at risk of being treated with broad spectrum antibiotics despite the low prevalence of coinfection, being exposed to procedures that are known risk factors for AMR development. While the counterpart from other experts argue that COVID-19 will not lead to increased AMR rates because of the decreased transmission factors in healthcare and community settings, international travel and all the others antimicrobial resistance factors.

Conclusion: The impact of COVID-19 on antimicrobial resistance rates remains to be determined and it is likely to be heterogeneous due to variation in health care practices. Antibiotic prescribing should be regulated according to national guidelines and used only when needed. The global impact is yet unknown and will become clear in time as data become available.

Abstract ID: 38
Literature review
Subcategory: antimicrobial resistance

Global epidemiology of CTX-B-lactamases; the spread of this antibiotic resistance has increased the effort to control its determinants

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Background: Before the discovery of penicillin in 1928, bacterial infections accounted for the majority of deaths worldwide. The effectiveness of antibiotics is being affected by the emergence of resistant bacteria especially in the field of nosocomial infections, for example, extended spectrum beta-lactamases (ESBL) types CTX-M (especially CTX-M-15), which are growing alarmingly. Nosocomial detection rates of CTX-M ESBL measured in Europe (15%), North America (30%) and China (60–70%) are worrisome.

Objective: To demonstrate the determinants of the spread of CTX-B-lactamases, seeking to promote intervention plans.

Methods: From our PICO question we searched NCBI PubMed filtering according to publications in the last 5 years in humans. The following terms were used: Beta-Lactamases, CTX-M, Epidemiology. Of 72 results, when applying the inclusion criteria (global epidemiology and CTX-M family without specific genotype) resulted in 7 articles that were submitted to reading abstracts to finally use 4 articles.

Discussion: Although new drugs have been developed, even these (carbapenem) already have resistance records (carbapenemases). Because of this, efforts should also focus on preventing the development of resistance, paying attention to the following aspects: poor health, wet food markets, use of antibiotics in livestock, increased global migration and international travel, the latter with alarming acquisition rates, where Europe reports fecal colonizations of ESBL in travelers of 20–50%, South and Southeast Asia report 60–70%.

Conclusions: The development of CTX-M ESBL shows high trends, with reports of high nosocomial detection rates in several countries.

There is evidence of risk factors that increase the spread of ESBL, projecting intervention plans in these areas.

Abstract ID: 42
Literature review
Subcategory: infections in the immunocompromised host

Approaching of fever of infectious origin in adult patients with systemic lupus erythematosus: a systematic review

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Background: Systemic lupus erythematosus is an autoimmune disease where fever is frequently found as one of its clinical characteristics, however it can be triggered either by an infectious process, malignancy, medication reaction, inflammatory processes or as an expression of the active disease, also called flare. Therefore, the primary search for infection in these patients is relevant, especially in those with moderate to high doses of corticosteroids or cytotoxic drugs, given their immunocompromised-state and the risks of morbidity and mortality in a patient with SLE and occult infection.

Objective: Recognize infectious fever in adult patients with SLE who are on immunosuppressive treatment.
**Methods:** Several recent studies on the clinical characteristics and biomarkers were analyzed for the timely identification of occult fever in patients with SLE. The following databases were used such as PubMed, Trip Database in addition to manual searches reference lists, identified relevant studies.

**Discussion:** Systemic lupus erythematosus is a disease in which various pro-inflammatory molecules such as IFN-α, IL-1, IL-6 and TNF are released in the pathogenesis of its disease, which in turn participate as pyrogenic cytokines that act directly in hypothalamus producing fever. Among the laboratory data that can help to differentiate the two main causes of fever are the blood count, the erythrocyte sedimentation rate and the C-reactive protein, however they are not very specific and can be modified by various causes. Its importance lies in the high morbidity and mortality of infection in a patient with flare.

**Conclusion:** In a patient with SLE who presents a fever, it should be considered as of infectious origin until the pertinent tests show otherwise, considering activity fever as a diagnosis of exclusion. The infections in these patients have a similar etiology to the general population, although they have a greater susceptibility to infections due to opportunistic fungi or parasites.

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**Abstract ID:** 43  
**Literature review**  
**Subcategory:** diagnosis and treatment of infectious diseases

**One dose doesn’t fit all: individualizing antibiotic therapy through PD/PK profiling in critically ill patients**

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**Background:** Infections in critically ill patients are associated with persistently poor clinical outcomes. Dysfunction of multiple organ systems occurs and may result in significantly different antibiotic concentrations, as these patients have severely altered antibiotic pharmacokinetics and pharmacodynamics. Without rational dose adjustment, these changes in drug concentrations can predispose to clinical failure, emergence of antimicrobial resistance and sub-optimal outcomes.

**Objective:** To review current reports describing potential solutions to the challenge of antibiotic dose adjustment in critically ill patients, and therefore discuss pharmacokinetic/pharmacodynamics (PK/PD) profiling as the up-to-date approach to individualization of antibiotic therapy to increase the likelihood of positive treatment outcomes for critically ill patients.

**Methods:** Data for this review were identified by searches in PubMed as well as references from relevant articles. Search terms related to antibiotic PK/PD in critically ill patients and dosing software were included. All relevant papers available in English were reviewed for inclusion.

**Results:** Optimal patient outcomes from treatment of infection are most likely to occur when PK/PD targets that are associated with maximal antibiotic activity are achieved. Therapeutic Drug Management (TDM) approach is being increasingly used to optimize dosing in the presence of severely deranged PK in critically ill patients. Some Bayesian dose-optimization software’s based on population PK models for antibiotics in critically ill patients have been developed. Currently there are several software’s available which apply different approaches to calculate individualized antibiotic doses for each patient.

**Conclusion:** Selecting an antibiotic that will optimally treat an infection while minimizing adverse effects and the development of resistance is only the first step, as one must also consider the patient’s individual pharmacokinetic alterations and the pharmacodynamics properties of the drug when prescribing it as well. A rigorous prospective evaluation of the benefit of individualized therapy should be considered essential.

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**Abstract ID:** 46  
**Literature review**  
**Subcategory:** COVID-19

**COVID-19 pandemic: a trigger for the rise in antimicrobial resistance**

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**Background:** In recent years, antimicrobial resistance has increased due to the indiscriminate and irrational use of antibiotics, thus leading to...
infections by multidrug-resistant pathogens. Added to this, the COVID-19 pandemic represents a trigger in the increase in the incidence of antimicrobial resistance related to the excessive use of prophylaxis and administration of broad-spectrum antibiotics in COVID-19 patients with a relatively low rate of secondary bacterial infection.

**Objective:** Establish if COVID-19 is an independent factor predictor that impacts antimicrobial resistance and what we can do to face it.

**Methods:** A systematic review was accomplished in PubMed and Elsevier databases, using the key words: COVID-19, antimicrobial resistance and antibiotics. Finally, 11 review articles were chosen and analyzed for later discussion in this poster.

**Results:** A total of 11 studies were included in this revision, mainly from Europe as the United Kingdom, as well as China, Brazil and Africa. Similar strength of evidence was reported in the studies about the percentage of patients with COVID-19 and secondary bacterial infections, where *Acinetobacter baumannii* stood out as the most common microorganism (35.8%; \( n = 57 \)). In addition, there was evidence of the 72.1% of 2010 hospitalized patients with COVID-19 that received antibiotic therapy even though only 8–16% of the patients had bacterial/fungal coinfections, which represents a major impact factor in the development of AMR (antimicrobial resistance) associated with COVID-19.

**Conclusion:** The rate of bacterial coinfection in COVID-19 is very low, in addition, it was found that there is an inappropriate prescription of antimicrobials, and this being an important risk factor for increasing resistance to them. Therefore, actions must be taken to reduce it, especially the use and adequate prescription of antibiotics.