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Antimicrobial Resistance and Infection Control

MEETING ABSTRACTS

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I01

Evaluating the acoustical performance of elastomeric half mask respirators, surgical masks, and single use N95 using measurements of speech test intelligibility

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Introduction: With the use of elastomeric-half mask respirators in healthcare settings, it has been reported that the verbal communication is decreased or compromised when wearing the masks (Palmiero, Symons, Morgan and Schaffer, 2016). This study examines the communication effectiveness of this innovation (elastomeric reusable respirator) and others in the industry, using speech intelligibility objective scoring, and qualitative research.
Objectives: This research measured the acoustical performance, speech transmission index (STI) (Palmeiro, et al., 2016) on an innovative elastomeric respirator, and others utilized in health care, according to IEC 60268-16 *Objective rating of speech intelligibility* standard.
Methods: STI measurements were obtained in a semi-anechoic acoustic test chamber/quiet room with background noise levels of less than 15 dBA. Then higher levels of background noise (57.6 dBA and 72 dBA, Zunn and Downey, 2005) was added to the test room and additional STI tests will be conducted in the presence of these elevated background noise levels.
The "voice" signal was emitted by the artificial voice of an acoustic head and torso simulator (HATS) and was one of two types of sound: the STI test waveform or the the Harvard sentences sound waveform (phonetically balanced and very clearly spoken human speech). The background noise portion, when used, was added separately by a high fidelity loudspeaker. The speech and STI waveform sounds were produced inside the test room at the sound level of 60 dBA (1 m microphone distance).
Results: In an environment with no background noise, the innovation of the re-usable elastomeric respirator, yielded the highest STI rating compared to other elastomeric respirators (0.90–0.91) or excellent rating. Other elastomeric respirators tested, showing fair, to low excellent range. The re-usable elastomeric respirator innovation had a 0.03 less in speech intelligibility than, single use N95 STI rating.
Conclusion: Speech intelligibility is complex, and incorporates subjective (listener) criteria, objective speech intelligibility, and background noise, as well as the environment. Additional subjective testing, with the recorded sound files, with a randomized control clinical trial would benefit this research.
Disclosure of Interest: E. Rodgers Consultant for: Precision Medical.

I02

Proximity, frequency and duration of close patient contacts among nurses in a COVID-19 intensive care unit: an electronic measurement

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Introduction: SARS-CoV-2 is mainly transmitted via respiratory ingestion of virus-containing particles. In principle, the likelihood of exposure to infectious particles of any size is increased within a distance of 1–2 m to an infected person. Nurses are particularly at risk of contracting COVID-19 from patients due to the close patient contact and the number of intensive contacts.
Objectives: It has not yet been investigated, how long and often nurses are exposed to a close patient contact due to the intensive care during their service. The study aimed to determine the duration and frequency of close patient contacts between nurses and COVID-19 patients during nursing activities.
Methods: In the period from 14.12.2020 to 28.02.2021, 12 beds of a COVID-19 pulmonary intensive care unit were equipped with

cohorts, studies reporting on clinical characteristics, risk factors and outcome of Tunisian COVID-19 patients are still scarce.
Objectives: The aim of our study was to describe the clinical characteristics of COVID-19 patients in a tertiary care center since the start of the pandemic (from first hospitalization until May 5), and identify independent risk factors for hospital mortality.
Methods: Since the start of the pandemic, the prevention and security of care department has been recording all new cases of COVID_19 hospitalized in the various units taking care of these patients. Daily monitoring of the evolution of the patient's condition is provided by the hygienist technicians of our department.
Results: From when the first patient with COVID-19 was admitted to May 5, 752 laboratory-confirmed COVID-19 patients had been admitted to our hospital. Most patients were male (55.5%), the mean age was 62.3 ± 14.5 years, with 279 patients (37.1%) being < 60 years of age. The median length of stay was 11 days (IQR 5–14). The most common comorbidities were hypertension (47.7%), diabetes (46.2%), and coronary artery disease (19.9%). Most patients had an important degree of hypoxemia, with 53.7% of patients not requiring supplemental oxygen, and 22.4% needed invasive mechanical ventilation. The overall case fatality rate was 23%. More patients died in the intensive care units (65.8%). Multivariate analysis model showed that history of comorbidity ($p = 0.015$), Non-invasive ventilation ($p = 0.041$), and mechanical ventilation ($p = 0.028$) were associated with an increased risk of death.
Conclusion: The risk factors found allow the identification of vulnerable groups in whom monitoring and early identification of symptoms should be prioritized in order to reduce mortality.
Disclosure of Interest: None declared

P309

Evolution of mortality over time: results from the COVID-19 Swiss hospital surveillance system (CH-SUR)

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Introduction: The assessment of COVID-19 associated mortality is crucial to evaluate the impact of the pandemic and to assess the effectiveness of measures.
Objectives: We aimed to investigate trends in COVID-19 related mortality over time in Switzerland, using data from the COVID-19 Hospital-based Surveillance (CH-SUR) database.
Methods: Considering four different time periods of COVID-19 epidemic, we calculated crude and adjusted mortality rates and performed competing risks survival analyses for all patients and for patients admitted to intensive care (ICU).
Results: Overall, 16,967 COVID-19 related hospitalizations and 2,307 deaths of adult patients were recorded. Crude hospital mortality rates were 15.6% in the 1st and 14.4% in the 2nd wave; for ICU patients it was 24% and 31.3%, respectively. The overall adjusted risk of death was lower for hospitalised patients during the 2nd compared to the 1st wave (HR 0.75, 95% CI 0.73 – 0.77). In contrast, patients admitted to ICU as well as patients with invasive ventilation presented a higher risk of death during the 2nd wave (HR 1.62, 95% CI 1.54—1.70 and HR 2.10, 95% CI 1.99—2.20, respectively).
Conclusion: Our findings may be explained by various changes in the COVID-19 patient management in Swiss hospitals, e.g. with the use of effective drugs against complications or with different guidelines for ICU admission and invasive ventilation use.
Disclosure of Interest: None declared

P310

Changes of lipoxina4 levels following early hospital management of patients with COVID-19

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Introduction: LipoxinA4 (LXA4) is an anti-inflammatory biomarker that participates in the active process of inflammation resolution which is suggested to be beneficial in infectious and inflammatory diseases like the coronavirus disease 2019 (COVID-19).
Objectives: This study aimed to determine early changes of LXA4 levels in the hospitalized patients with confirmed COVID-19 following the clinical management as well as its correlation with common used inflammatory markers, including Erythrocyte Sedimentation Rate (ESR), C-reactive protein (CRP), and ferritin.
Methods: Thirty-one adult hospitalized patients with the non-severe COVID-19 were included. LXA4, ESR, and CRP serum levels were collected on the first day of hospitalization, and LXA4 levels were measured 48–72 h later as well. Moreover, the maximum serum ferritin level during the five days of following patients was collected.
Results: The mean age of patients was 61.9 ± 17 years, and the male to female ratio was 18:13. LXA4 levels were significantly increased at 48–72 h compared to the baseline concentrations (9.9 ± 0.7 vs. 21.7 ± 15.1 ng/L; $P < 0.05$). The mean baseline concentrations of CRP and ESR and the mean maximum concentration of ferritin were 74.7 ± 57.3 mg/L, 55.7 ± 34.4 mm/h, and 568.7 ± 530 ng/mL, respectively. Besides, CRP and ESR levels at the time of admission and maximum ferritin levels during the hospitalization were positively correlated to an increase of LXA4 levels ($R = 0.499, 0.535, 0.398$; $P = 0.007, 0.005, 0.043$, respectively).
Conclusion: LXA4 may be a valuable marker to assess the treatment response compared to ESR, CRP, and ferritin in hospitalized patients with COVID-19. Furthermore, LXA4 could be considered a potential treatment option in inflammatory conditions. Further studies are necessary to clarify LXA4 role in COVID-19 pathogenesis, as well as the balance between such pro-resolving mediators and inflammatory parameters.
Disclosure of Interest: None declared

Poster Session: Public Health issues of COVID-19

P311

Examining the discourse regarding the delivery of occupational health and safety training to healthcare workers: a review of pandemic plans of 23 countries

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Introduction: COVID-19 pandemic has highlighted gaps in health service responses and has exposed ongoing risks for healthcare providers