stronger when analysing separately H-CRS patients. This could point out the role of impaired efficiency of ventilation in the pathophysiology of COVID-19-related respiratory failure, especially in those patients with a higher CRS. In addition, d-dimer might prove helpful to identify patients at higher risk of decompensation due to high VR.

Reference(s)

1. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020; 395: 497–506.
2. Grieco DL, Bongiovanni F, Chen L, Menga LS, Cutuli SL, Pintaudi G, Carelli S, Michi T, Torrini F, Lombardi G, Anzellotti GM, De Pascale G, Urbani A, Bocci MG, Tanzarella ES, Bello G, Dell'Anna AM, Maggiore SM, Brochard L, Antonelli M. Respiratory physiology of COVID-19-induced respiratory failure compared to ARDS of other etiologies. Crit Care. 2020 Aug 28;24(1):529. https://doi.org/10.1186/s13054-020-03253-2.
3. Carsana L, Sonzogni A, Nasr A, Rossi RS, Pellegrinelli A, Zerbi P, Rech R, Colombo R, Antinori S, Corbellino M, Galli M, Catena E, Tosoni A, Gianatti A, Nebuloni M. Pulmonary post-mortem findings in a series of COVID-19 cases from northern Italy: a two-centre descriptive study. Lancet Infect Dis. 2020 Oct;20(10):1135–1140. https://doi.org/10.1016/S1473-3099(20)30434-5.
4. Liu X, Liu X, Xu Y, Xu Z, Huang Y, Chen S, Li S, Liu D, Lin Z, Li Y Ventilatory ratio in hypercapnic mechanically ventilated patients with COVID-19-associated acute respiratory distress syndrome. Am J Resp Crit Care Med 2020; 201:1297–99. https://doi.org/10.1164/rccm.202002-0373LE.
5. ARDS Definition Task Force, Ranieri VM, Rubenfeld GD, Thompson BT, Ferguson ND, Caldwell E, et al. Acute respiratory distress syndrome: the Berlin Definition. JAMA 2012; 307:2526–33. https://doi.org/10.1001/jama.2012.5669

000635

High Flow Nasal Cannula in patients admitted in Intensive Care Unit with SARS-COV-2 pneumonia and Acute Respiratory Distress Syndrome. Is the failure of this therapy related to obesity?

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Introduction. In 2020, COVID 19 disease spread and became a global health problem. Intensive Care Units (ICU) have hughely increased the number of patients admitted due to pneumonia and acute respiratory distress syndrome (ARDS). In this context, High Flow Nasal Cannula (HFNC) has been considered an option to support respiratory failure to provide not only higher concentration but also higher flow of oxygen to treat hypoxemia. Before the COVID-19 pandemic, studies demonstrated that HFNC could avoid orotraqueal intubation (OTI) and reduce mortality. The present study examines whether HFCN can be consider an option in treatment for hypoxemia in COVID-19 patients admitted in ICU and if its failure could be related to obesity, based on a Body Mass Index (BMI) over 30.
Objectives. Firstly, knowing if HFNC can avoid OTI in patients with ARDS due to COVID-19 pneumonia. Secondly, to see if HFCN failure is related to BMI.
Methods. This single center descriptive restrospective study is been realized in Hospital Clínico de Santiago de Compostela (Spain), and has analyzed at this moment 159 patients admitted in ICU. Data collection included the respiratory support at the admission and the BMI. Data analysis was made through SPSS statistics with Pearson's Chisquare test.
Results. 159 patients were admitted in ICU with ARDS requiring oxygen support due to respiratory failure. At the time of admission, 85 (53%) were treated with HFNC, 74 (47%) required OTI.
In the HFNC subgroup, 75 (88%) of those patients needed OTI and mechanical ventilation: 18 (21%) patients in less than 1 h; 61 (72%) in less than 1 day. Criteria for OTI and mechanical ventilation were regular: refractory hypoxemia and tachypnea despite of non-invasive respiratory support.
89 patients, over de 159 included in this study, had overweight, considering it a BMI > 30. In only the subgroup of patients treated with HFNC, 50 patients (60% of the subgroup) had a BMI > 30, in 43 of those patients, the 86% of the patients with a BMI > 30 supported with HFNC, presented hypoxemia and tachypnea, requiring OTI, almost all of them in the first hour (38 patients over 43).
To summarize, 149 (94%) patients received mechanical ventilation and 89 were obese.
Conclusion. ARDS caused by COVID-19 requires OTI and mechanical ventilation in most of the patients admitted in ICU. While, more data is required to confirm a relation between BMI and HFNC failure. Besides, HFNC support is likely to fail the very first hour in patients with obesity.

Reference(s)

1. Li J, Fink JB, Ehrmann S. High-flow nasal cannula for COVID-19 patients: low risk of bio-aerosol dispersion. Eur Respir J 2020; 55: 2,000892 [https://doi.org/10.1183/13993003.00892-2020].
2. Rochwerg B, Granton D, Wang DX, et al. High flow nasal cannula compared with conventional oxygen therapy for acute hypoxemic respiratory failure: a systematic review and meta-analysis. Intensive Care Med 2019; 45: 563–572
3. Clinical consensus recommendations regarding non-invasive respiratory support in the adult patient with acute respiratory failure secondary to SARS-CoV-2 infection. Cinesi et al. Medicina Intensiva https://doi.org/https://doi.org/10.1016/j.medin.2020.03.005

000641

AirWayShield®, a novel protection barrier to protect clinicians while intubating patients with COVID-19 or other respiratory diseases

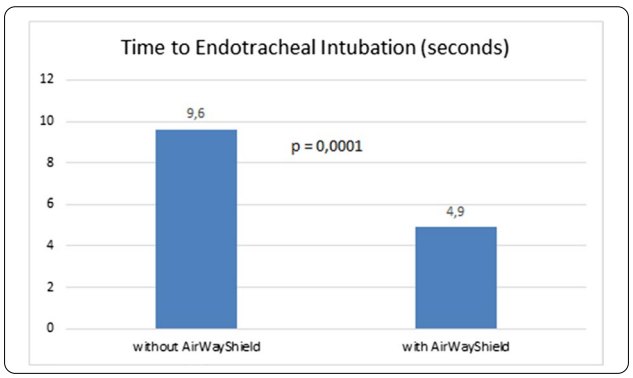
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Introduction. The COVID-19 pandemic has raised an urgent need for adequate protective measures during high-risk aerosol-generating procedures such as endotracheal intubation (ETI). Current clinical guidelines for airway management encourage clinicians to focus on using appropriate contact and airborne precautions. The Airway Shield™ is a new and cost-effective barrier device that protects medical staff during intubation while facilitating the procedure itself, in contrast to other available alternatives such as barrier enclosures ('aerosol boxes').
Objectives. To conduct a randomized cross-over trial to determine whether intubation with the Airway Shield™ is non-inferior to standard intubation. We hypothesized that endotracheal intubation with Airway Shield™ in a mannequin model results in similar first-pass success rates and intubation times when compared to endotracheal intubation without the device.
Methods.



We conducted a randomized cross-over trial to test feasibility of endotracheal intubation (ETI) with a MacIntosh laryngoscope and Airway Shield™ compared to standard of care (MacIntosh laryngoscope) in a manikin model (AirSim, TruCorp®). Primary endpoints were intubation time and success rate. Participants included 15 anaesthesiologists (10 females, 5 males) from the Hospital Universitario Araba (Vitoria, Spain) with no previous experience with the device. Participants were randomized to start with (9) and without (6) the Airway Shield™. 3 attempts with and 3 without the device were made by each participant (total intubations = 90).

Results. 45 intubations were carried out with each method. The mean time for ETI with the Airway Shield™ and MacIntosh Laryngoscope was 4,9 sg [2–9] compared to 9,6 sg [3–43] for ETI without the device ($p < 0{,}001$). The ETI success rate was 100% with both methods. Finally, participants scored the feasibility of intubation with Airway Shield. On a scale of 0–10, six gave Airway Shield™ 10 points (very feasible), three gave it 9 points, and six 8 points. Regarding ease of intubation, participants gave Airway Shield™ a mean of 9/10 points compared to 8/10 without Airway Shield™.



Conclusion. The Airway Shield™ is a cost-effective, safe, and innovative solution for avoiding clinician exposure to aerosols and droplets during airway management. This study demonstrates that it facilitates laryngoscopy by reducing intubation times in a mannequin model.

Reference(s)
1. TruCorp®, mannequin provider
2. https://airwayshield.com

000644

STUDY OF THE MAIN RISK FACTORS OF POST EXTUBATION STRIDOR IN CRITICAL ILL PATIENTS AFFECTED BY SARS-CoV2

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Introduction. Post-extubation stridor is an uncommon entity in critical ill patients, with a global incidence of < 10% in the Intensive Care Units. It however implies more re-intubations; more days of mechanical ventilation and longer hospital stay.

Objectives. To establish the incidence and main risk factors of post-extubation stridor in the critical ill patients affected by Sars-CoV2.

Methods. An observational retrospective study in an Intensive Care Unit of a Spanish University hospital, between December 2020 and March of 2021.

Patients included were diagnosed with an acute respiratory failure due to COVID 19 pneumonia and developed stridor during ICU stay.

We collected demographic data (age, sex), comorbidities (arterial hypertension, previous pulmonary pathology, dyslipidaemia, diabetes mellitus and obesity), days of ICU stay and days of endotracheal intubation, neuromuscular blockers and pronation manoeuvres, treatment with corticosteroids, need of reintubation and mortality.

Results. From the 112 COVID-19 patients accepted in our ICU during the chosen period, we analysed 8 cases of stridor (7.14%). The mean age of our sample was 61.63 ± 8.23 years. The demographic data is shown in the table below.

		YES	NO	%
Sex ♀		7	1	87.5%
CV medical history	Hypertension	3	5	37.5%
	Obesity	5	3	62.5%
	Dyslipidaemia	3	5	37.5%
	Mellitus diabetes	0	8	0%
Pulmonary medical history	Asthma	2	6	25%
	COPD	0	8	0%
Tobacco		1	7	12.5%

100% of the patients required intubation with no complications associated and on the first try.

8-gauge tubes with subglottic aspiration were used in the 87.5% of the patients (8/7). 4. patients required pronation manoeuvres; neuromuscular blockers were used in the 75% of the patients with a median of 2.5 ± 0.82 days.

The mean number of days of endotracheal intubation was 8.88 ± 2.8. 50% of the patients had completed treatment with corticosteroids (Dexamethasone 6–10 mg/day during 10 days).

Due to stridor, 4 of 8 patients (50%) were reintubated, during 5.25 days on average. 100% of the patients received high dose of corticosteroid therapy (> 1 mg/Kg/day). Only 1 patient was tracheotomised. The average stay in ICU was 13.87 ± 2.67 days, with no relationship between the need of reintubation or the conservative treatment (p 0.272) All of our patients were discharged of ICU.

Conclusion. In our sample, the number of cases of stridor was less than the literature cases, probably due to performing tracheostomy early, specifically at the 10th-12th days of intubation.