Another top 5 for this week, back with the team in Manchester. We have been enjoying the brilliant top 5s with insights from our colleagues across the country. Thank you to the teams from CURE in Sheffield, the Academic Emergency Department in Plymouth, the Academic Department of Military Emergency Medicine, the Cambridge University Hospitals research team, EMAG in Leicester and King's College Hospital ED research group. We will be continuing our tour in the upcoming weeks and would welcome any new groups that would be interested in getting involved.

This week we have sorted through 877 papers and narrowed them down to 5 that deserve your attention.

As previously, these have been split into 3 categories that will allow you to focus on the papers that are most vital to your practice.

- Worth a peek: interesting, but not yet ready for prime time
- Head turner: new concepts
- Game changer: this paper should change practice

Tocilizumab among patients with COVID-19 in the intensive care unit: a multicentre observational study by Biran et al. [1]
Topic: Treatment
Rating: Head turner
Scout: Professor Simon Carley

Severe COVID-19 disease has many hallmarks of a cytokine storm with high levels of inflammatory response in the lungs and other organs. We have already seen that dexamethasone offers survival benefit in these patients, but it is rather a blunt tool in its moderation of the immune response. There are now several trials looking at the use of immunosuppressants that target specific parts of the immune response. Tocilizumab is a monoclonal antibody that is directed at the interleukin-6 receptor and is one of the many drugs that have been tried against severe COVID-19. In this observational study of over 200 patients treated with Tocilizumab the outcome (death or survival) was compared against a control group using propensity matching. The results are promising with a decrease in hospital-related mortality HR 0·64, 95% CI 0·47–0·87; p=0·0040). To explain these hazard ratios more clearly: this meant that 158/416 (37%) were alive at 75 days with standard care as compared to 103/205 (50%) on Tocilizumab. We still need to see the results of the ongoing RCTs of Tocilizumab, but this is promising news for the sickest COVID-19 patients.
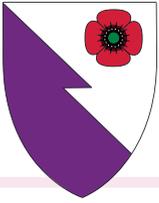
Post-exertion oxygen saturation as a prognostic factor for adverse outcome in patients attending the emergency department with suspected COVID-19: Observational cohort study by Goodacre et al. [2]
Topic: Prognosis
Rating: Worth a peek
Scout: Dr Charlie Reynard

Post-exertional oxygenation has been used as a COVID-19 triaging tool in many ED's based on emerging expert clinical opinion. The PRIEST study has weighed in with a pre-print from its UK multicentre observational cohort data. 22,485 patients with suspected COVID-19 were recruited from 70 sites to the main study, but only 874 had the post-exertional oxygenation recorded and could be included. Before we get to the results there are limitations; a hybrid pro and retrospective study was used and whilst pragmatic it does introduce heterogeneity, only 3.8% of the total study population were eligible for this sub-study from an unstated number of sites, and they examined a lower risk group with an adverse outcome rate of 3.7% compared to 18.8% from the main cohort.

Post-exertional oxygenation had an area under the curve (AUC) of 0.589 for an adverse outcome (organ support or death), which is not great. AUC is a commonly used stat in predictive modelling to assess discrimination, it ranges from 0.5 to 1.0. If you tossed a coin to predict the outcome you would get 0.5 (useless) but 1.0 is mystic Meg's perfect crystal ball (high sensitivity troponin has an AUC for MI of ~0.95). The authors also conducted a multi-variable analysis, attempting to account for other factors, and they found that it did improve the model. This paper is full of nuance, however, it appears that Goodacre et al. found that post-exertional oxygenation is not a great test on its own, but may be an important addition to a broader model.

Watch this space, we are aware of an American paper coming out soon that may offer contrary findings.
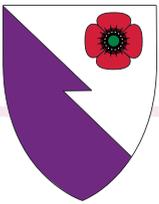
Irritant contact dermatitis in healthcare workers as a result of the COVID-19 pandemic: a cross-sectional study by Kiely et al. [3]
Topic: Wellbeing
Rating: Worth a peek
Scout: Dr Daniel Darbyshire

There have been a fair few similar studies looking at contact dermatitis in healthcare workers during the pandemic. Maybe we should always have been washing our hands more, or maybe the shortage of alcohol gel has had an impact, or maybe paranoia has led us to wash our hands more even at home. Who knows? But as someone with a tube of hand cream in every backpack, by the side of the bed and next to the sofa I think this is an important area. Certainly it is something, as emergency physicians, we are inclined to brush off in the context of all the other things which are important for us to do our job well!

This is a small, simple, cross-sectional study looking at the prevalence of contact dermatitis in healthcare workers situated in the ED, ICU or wards during two weeks of the pandemic. The combination of electronic and paper survey does not overcome the risk of bias with both the methodology and the response rate of 27% (actually pretty good for these types of studies). 82.6% of respondents reported signs or symptoms of dermatitis, and most didn't use emollients. Dry, cracked hands are harder to clean, painful and may lead to time off. Do yourself and your patients a favour and look after your skin. Here is a link to a guide from the RCP and the Faculty of Occupational Medicine.

Performance of pneumonia severity index and CURB-65 in predicting 30-day mortality in patients with COVID-19 by Satici et al. [4]
Topic: Prognosis
Rating: Worth a peek
Scout: Dr Gaby Prager

Does CURB-65 or PSI work for COVID19? Being able to re-task and use an existing, simple and well-known tool to help risk-stratify patients with COVID-19 on admission would be useful. However, re-tasking algorithms from other conditions for which they were developed must be done with caution. This group form Turkey conducted a retrospective cohort study of 681 COVID-19 patients and assessed the 30-day mortality discriminatory ability of PSI and CURB-65s for COVID-19. They found that CURB-65 did not perform particularly well, a CURB-65 score >2 had AUC 0.79 (sensitivity 73%, specificity 85%). PSI performed better: a score >IV had an AUC 0.85 (sensitivity 80%, specificity 89%).

Interestingly their cohort had an overall mortality 8%, lower than some other studies we have looked at, potentially because in Turkey anyone over 50 with a comorbidity and signs/symptoms of COVID-19 is admitted to hospital. From their results, PSI may have a role and future applicability, however, before adoption into wider clinical use, more work will be needed.
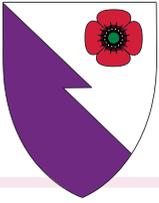
Clinical and Epidemiological Features of 46 Children <1 Year Old With Coronavirus Disease 2019 in Wuhan, China: A Descriptive Study by Liu et al. [5]
Topic: Epidemiology
Rating: Worth a peek
Scout: Dr Gaby Prager

This is a descriptive study of characteristics of 46 patients (inc. 7 neonates) under the age of 1 (median 5 months) with confirmed COVID-19 at Wuhan Children's Hospital. Most (40) presented with moderate COVID-19 and 10 had existing comorbidities. Fever (34%) or cough (59%) were the most common presentations. Young children seem to be at higher risk of cardiac or liver disfunction with cardiac injury seen in 38 cases and liver disfunction 20 cases. 2 patients needed invasive mechanical ventilation, and no others required oxygen therapy. 1 patient died whose case was complicated with intussusception. None had decreased lymphocyte count with them being raised or normal in all cases, unlike adults.
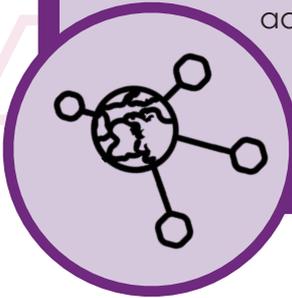
So far, we have seen few studies of COVID-19 features or differences in very young children and Liu et al. provide a nice description of what they have seen.

In summary

Biran et al. show that Tocilizumab could be a promising treatment.[1]
Goodacre et al. found that post-exertional oxygenation may not be a good prognostic tool.[2]
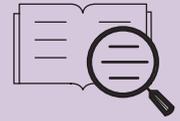Kiely et al. remind us to moisturize our hands and look after our skin.[3]
Satici et al. looked at re-tasking CURB-65 or PSI to predict COVID-19 mortality.[4]
Liu et al. describe the presentations of children <1-year-old with COVID-19.[5]

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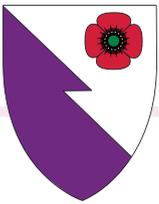
References

1. Biran, N., Ip, A., Ahn, J., Go, R.C., Wang, S., Mathura, S., Sinclaire, B.A., Bednarz, U., Marafelias, M., Hansen, E. and Siegel, D.S., 2020. Tocilizumab among patients with COVID-19 in the intensive care unit: a multicentre observational study. The Lancet Rheumatology.

2. Goodacre, S., Thomas, B., Lee, E., Sutton, L., Biggs, K., Marincowitz, C., Loban, A., Waterhouse, S., Simmonds, R., Schutter, J. and Connelly, S., 2020. Post-exertion oxygen saturation as a prognostic factor for adverse outcome in patients attending the emergency department with suspected COVID-19: Observational cohort study. medRxiv.

3. Kiely, L.F., Moloney, E., O'Sullivan, G., Eustace, J.A., Gallagher, J. and Bourke, JF, 2020. Irritant contact dermatitis in healthcare workers as a result of the COVID-19 pandemic: a cross-sectional study. Clinical and experimental dermatology.

4. Satici, C., Demirkol, M.A., Altunok, E.S., Gursoy, B., Alkan, M., Kamat, S., Demirok, B., Surmeli, C.D., Calik, M., Cavus, Z. and Esatoglu, S.N., 2020. Performance of pneumonia severity index and CURB-65 in predicting 30-day mortality in patients with COVID-19. International Journal of Infectious Diseases.

5. Liu, X., Xie, R., Li, W., Guo, Y., Zhang, B., Zhang, Y., Wang, J., Peng, C., Lei, X., Luo, Q. and Zhang, Q., 2020. Clinical and epidemiological features of 46 children under 1 year old with coronavirus disease 2019 (COVID-19) in Wuhan, China: a descriptive study. The Journal of infectious diseases.