INTRODUCTION / AIM

- Mucormycosis is a rare but serious fungal infection with high mortality and morbidity, infecting many locations.
- Immunocompromised individuals are known to be at risk.
- In the second wave of the COVID-19 pandemic: significant increase in the number of Mucormycosis cases reported, especially around India.
- Later defined: COVID-19 Associated Mucormycosis (CAM)
- Current need to define new guidelines for CAM prevention and treatment
- Literature gap: Few meta-analyses; few IPD or regional

METHODOLOGY

- Inclusion criteria for the studies:
  - Presenting patients (>18 y.o.) who developed mucormycosis at the time of or after SARS-CoV-2 infection (CAM);
  - Presenting individual participant data (IPD)
- Additional studies and cases: citation chaining, contacting authors of studies presenting aggregate data for IPD, unpublished IPD from international collaborators
- Data extraction: >65 variables for each individual case
- Triple blind check for inclusion and data extraction
- Statistical analyses: Stata 16.0 software (Stata Corp, College Station, TX, USA)
  - chi-squared test, t-test, multivariate logistic regression

RESULTS

- Top 3 countries reporting the most cases: India (60%), Egypt (11%), Iran (6%).
- Most common comorbidity was DM (77%), mostly uncontrolled DM (83%).
- Among the comorbidities, predictors of fatality were diabetic ketoacidosis, malignancy, pulmonary disease, renal disease, and neutropenia.
- Severe COVID-19 (63%), ICU admission (52%), mechanical ventilation (33%) were common and associated with higher mortality.
- Corticosteroid use for COVID-19 management (77%) was common but did not affect survival.
- Aspergillus coinfection and hospital-onset mucormycosis were also associated with higher mortality.
- The most common sites: ROM (32%), ROCM (26%) and pulmonary mucormycosis (13%). Pulmonary, gastrointestinal and disseminated mucormycosis were the most fatal sites.
- The diagnosis of pulmonary mucormycosis was significantly delayed.
- Combination therapy with antifungals and surgery was more successful than antifungals alone. Posaconazole users had higher survival rates while voriconazole and echinocandin users had lower survival rates.
- R. arrhizus was more common in diabetic patients while R. microsporus was more common in non-diabetic patients.

CONCLUSION

- Our study is the most comprehensive IPD-meta-analysis in the literature so far, including the MOST number of cases from all over the world, providing an insight into CAM from all aspects.
- We identified changing epidemiological information, novel mortality predictors, pathophysiological connections, treatment efficacies and shifting trends with COVID-19.