

Mohammad T. Hedayati¹, Mona Ghazanfari¹, Amir Arastehfar², Lotfollah Davoodi³, Jamshid Yazdani Charati⁴, Martin Hoenigl⁵, Weihua Pan⁶

¹ Invasive Fungi Research Center, Communicable Diseases Institute/Department of Medical Mycology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran; ² Center for Discovery and Innovation, Hackensack Meridian Health, Nutley, NJ, USA; ³ Antimicrobial Resistance Research Center/ Department of Infectious Diseases, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran; ⁴ Department of Biostatistics, Faculty of Health, Mazandaran University of Medical Sciences, Sari, Iran; ⁵ Section of Infectious Diseases and Tropical Medicine, Department of Internal Medicine, Medical University of Graz, 8036 Graz, Austria; ⁶ Medical Mycology, Shanghai Changzheng Hospital, Second Military Medical University, Shanghai 200003, China

Introduction

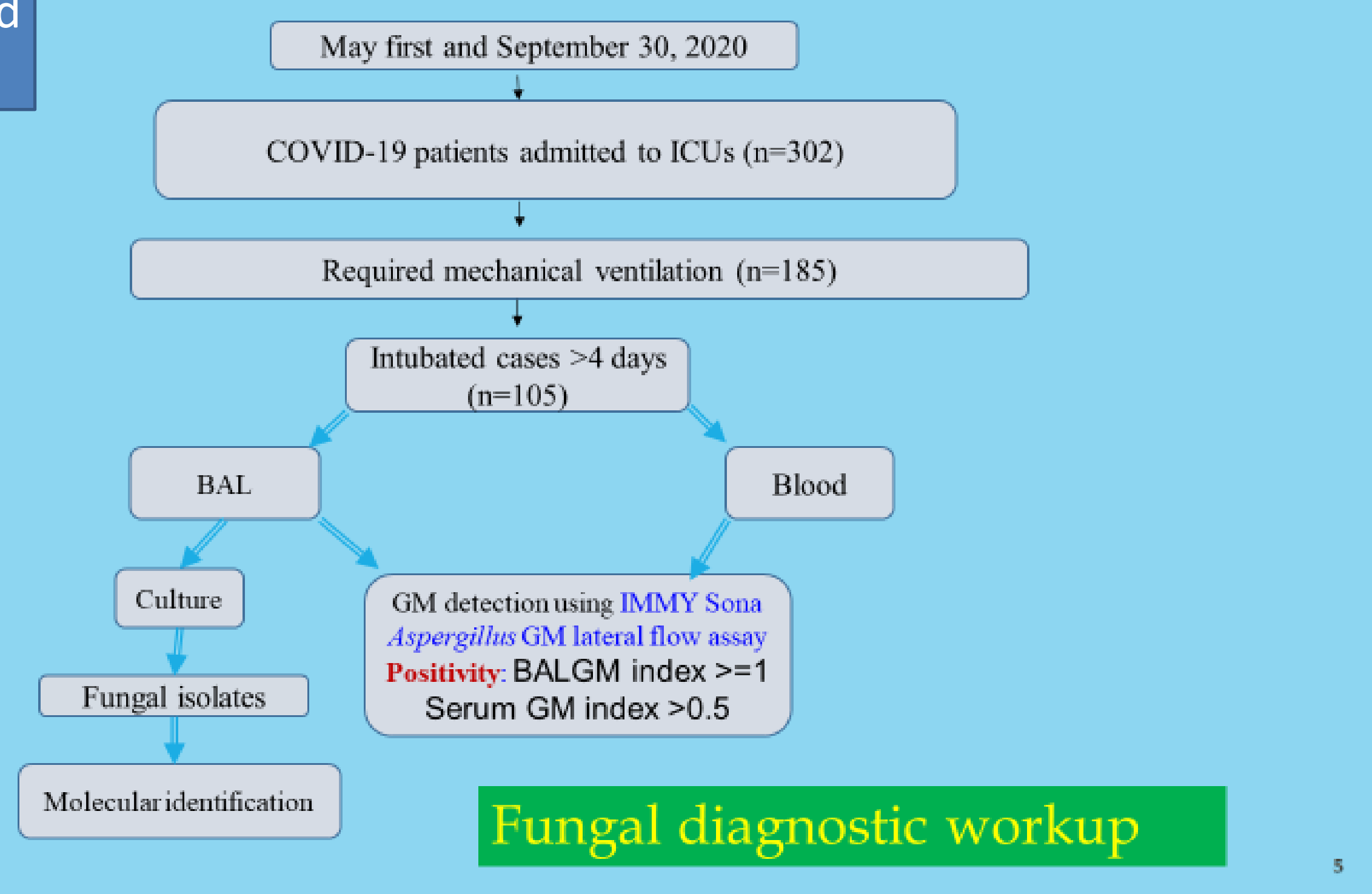
After the occurrence of COVID 19, the secondary fungal infections were reported in a considerable rate in these patients with a high mortality in different countries. So, at present, COVID 19 classified as one of the high-risk groups for COVID-19 associated pulmonary aspergillosis. One of the main challenges in fungal infections diagnosis in ICU patients including COVID-19 is the lack of a consensus on a diagnostic algorithm. Critically-ill COVID-19 patients are usually without classical host factors (neutropenia, receipt of an allogeneic stem cell transplant) and clinical criteria (halo signs) for CAPA as defined by the (EORTC/MSG). So, in different study, different algorithms were used for the evaluation of COVID-19 patients for CAPA.

Including:

- AspICU algorithm and some of its modifications
- Revised (EORTC/MSG-2020)
- Influenza associated pulmonary aspergillosis proposed by -Verweij et al
- And, ECMM/ISHAM consensus criteria for CAPA which we used it for classification of CAPA in this present work.

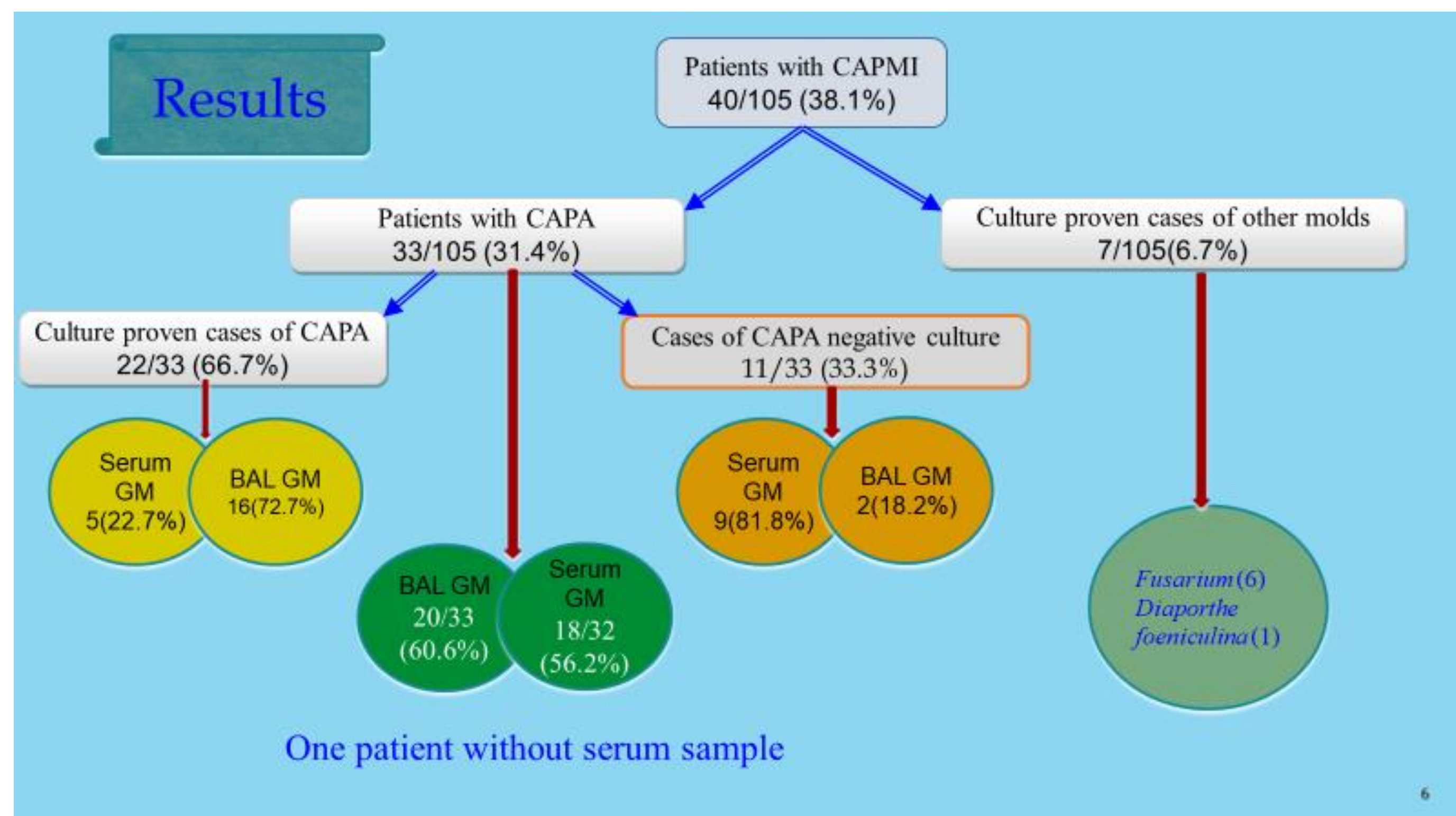
In this study, we aimed the prevalence of CAPA among mechanically ventilated patients using Galactomannan Lateral Flow Assay and culture from Iran.

Methods and design



5

Results



6

Discussion

Demographic findings

The incidence rate of CAPA in this study was

- according to EORTC/MSG criteria (1.9%),
- AspICU algorithm (27.6%),
- 2020 ECMM/ISHAM criteria (31.4%)

Several studies from different countries reported different rate of CAPA.

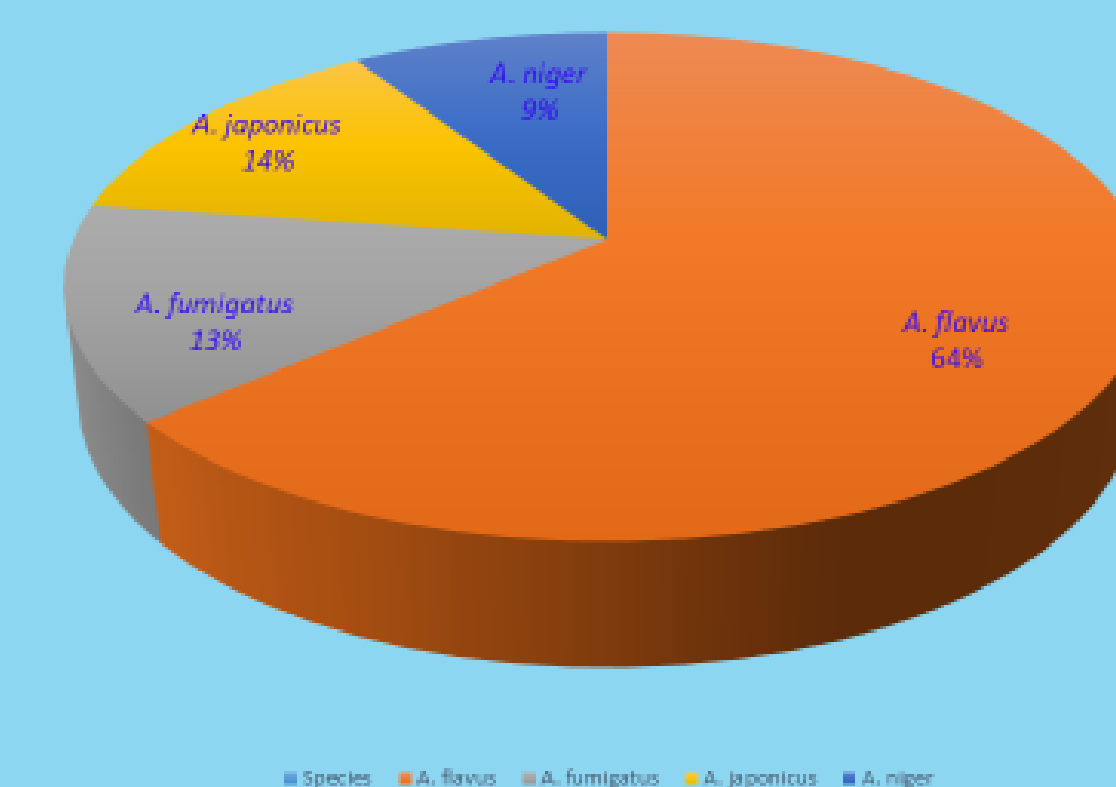
The overall incidence of reported CAPA was 13.5% and ranging between 2.5 and 38.0%

The incidence of CAPA was reported in different rate according to the used algorithm.

- The patients' ages ranged from 25–95 years with a mean of 65.2 years. Of 105 patients, 14 did not have any underlying conditions, while underlying conditions were noted in 91 cases, among which hypertension, ischemic heart diseases, diabetes mellitus were the most common.
- All included patients were receiving Antibacterial antibiotics and steroids.

Causative agents

Distribution of isolated *Aspergillus* species in COVID-19 patients from Iran



▷ *A. fumigatus* was the most prevalent from European countries

7

Conclusion

According to a high mortality associated with CAPA we need a safe and sensitive diagnostic strategy. The difficulty in comparing different observational studies, a consensus on definition of CAPA is also needed.