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Epidemiology of human fusariosis in Greece: results from a 16-year nationwide multicenter survey

Maria Dragou-Apizahinis1,2, Alexandra Mpkouli3, Maria Stoil4, Athina Argirogeorgopoulou3, Georgia Vrana5, Vasiliki Mavrommati1,2, Myrto Costopoulou1,2, Joseph Meletiadis6, Maria Orfanoudou6, Alexandra Mastorogiannakis-Martou6, Anna Skitala6, Georgios Petrikas6

Infectious Diseases Research Laboratory-Weltip Department of Internal Medicine, Attikon General University Hospital, Medical School, National Kapodistrian University of Athens, Athens, Greece

1General Hospital of Nikia Agios Pantelimon, Piraeus, Greece

2Clinical Microbiology Laboratory, Attikon General University Hospital, Athens, Greece

3Department of Clinical Microbiology, Evangelismos General Hospital, Athens, Greece

4Department of Microbiology, Medical School, Athens, Greece

5Department of Microbiology, Technion General Hospital, Piraeus, Greece

6Institute of Microbiology, University Hospital of Patras, Patras, Greece

7General Hospital of Athens "Georgios Germatoura", Athens, Greece

8Pediatric Department of Medicine, Laiko General Hospital, Athens, Greece

9Sofos of Medicine, European University Cyprus, Nicosia, Cyprus

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Objectives: Fusarium species comprise a vast array of rare but serious and difficult-to-treat infections, ranging from keratin and encephalocoele in immunocompromised hosts to life-threatening systemic infections in immunocompetent patients such as those with hematologic malignancies. We aimed to assess the disease burden and baseline epidemiology of fusariosis in Greece.

Methods: From 2004 through 2020 a prospective, multinational, multicenter survey took place. Demographic and clinical data of fusarial cases were collected. Fusarium strains isolated were identified to species level with molecular methods and/or MALDI-TOF MS, and tested for antifungal susceptibility in vitro with the Etest/Gram staining.

Results: A total of 54 cases were registered. The most frequent infection was keratitis (n = 21, 39%), followed by bloodstream infections in patients with hematologic malignancy (n = 12, 22%). Other infections involved the respiratory tract (n = 5, 9%), and sinuses (n = 5, 9%) in immunocompromised patients, soft tissue after trauma (n = 5, 9%), or diabetic foot (n = 2, 5%), and endomyocarditis (n = 2, 5%). The estimated incidence of invasive fusariosis was 2.9 cases/100,000 cases/year in adults (102,075/500,000 population). The most frequently isolated species were F. solani species complex (SC; n = 11, 20.7%), followed by Fusarium oxysporum SC (n = 12, 22.2%), from which 6 F. erysfalıdii and 6 F. pseudograminearum. Other SCs included F. culmorum, F. sporotrichoides, and F. moniliforme. In keratitis cases, F. solani was associated with infection injury to plant material, whereas F. fujikuroi with soft tissue contact. Fusarium oxysporum was more frequently isolated from nails or soft tissue infections (13.8%). Antifungal MFs were high, with no clear interspecies differences (geometric mean 1.6, 2.5, 5.2 mg/l for amphoterin B, voriconazol, and posaconazol, respectively; median values 2, 4, 8 mg/l, respectively). Fluconazole and the echinocandins showed no activity (MIC > 512 mg/l). The most frequently used antifungals were amphoterin B and voriconazol, usually in combination. Treatment failure in keratitis was 38.5%. In pa-tients with hematologic malignancies the study mortality rate was 71.4%, usually related to the underlying disease. Soft tissue infections complicating diabetic foot or trauma were treated surgically, with favorable outcomes.

Conclusions: Fusariosis in Greece is an emerging disease, with considerable morbidity and mortality in the immunocom-promised. Early diagnosis and initiation of the appropriate treatment were critical for a successful outcome in keratitis cases, despite moderate high MICs of the antifungals used.

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Disseminated Histoplasmosis in an immunocompetent patient in a tertiary care center in North India

Aakshita Dubey1,2,3, Rungeet S.K. Marai4, Bishal Guptra3, Subash Yadav4, Aki Kumar Dinli5, Shibha Tripathi5

1SGPGIMS, Lucknow, India

2SGPGIMS, Lucknow, India

3SGPGIMS, Lucknow, India

4SGPGIMS, Lucknow, India

5SGPGIMS, Lucknow, India

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Objectives: Histoplasmosis is a geographically restricted systemic fungal infection that causes disseminated infection in immunocom-petent as well as immunocompromised patients. Adrenal involvement is seen in disseminated disease but sometimes it may be the only one when the infection can be disseminated. Early diagnosis and treatment are needed to save the patient from fatal adrenal insufficiency. We present a case of bilateral adrenal histoplasmosis in an immunocompetent patient.

Methods: A 63-year old male presented to our hospital with a history of severe onset of febrile episodes and unimproving fatigue for the last 6 months associated with generalized weakness. Patient had a history of cold induced insulin dependent diabetes, severe psychological decline, pain and weakness which was not investigated in nature. Patient originally belongs to Agra, Uttar Pradesh, but he was residing in Kolkata for the last 9 months.

On the CECT abdomen it was found that there was an ill defined hypoechoic enhancing lesion 72 × 32 × 77 mm in size on right suprarenal region and bulk. On MRI 24 cm × 16 cm mass lesion in left suprarenal gland associated with multiple noncalcified paraaortic and aortic caval lymphadenopathy. He also received empirical anti-tuberculosis therapy for 15 days in the form of ethambutol and levofloxacin.

Results: In all, 10% RKB test was positive or smudged smear of adrenal biopsy samples showed mixed debris and small tubular tubular branching. Patient was put in SBP at 35°C and 37°C and incubated. On day 12, growth of colony in 25°C appears as white cottony growth with yellowish brown reverse. On day 24, colony appears as bell shaped with yellowish brown reverse. LPCB was done from the colony showing presence of characteristic tuberculin macroconidia (5-14 μm) in diameter formed on short hyaline, undifferentiated chlamydospores and production of platenoid round to pyriform macroconidia (2-4 μm) in diameter, occurring on short branches and directly on the sides of the hyphae. Based on the direct microscopy and culture characteristics a diagnosis of Histoplasma capsulatum was given.

Conclusions: Synchronous histoplasmosis is typically acquired through inhalation of macromycela or small hyphal elements in soil contaminated by bird or bat droppings leading to primary infection. This patient only manifested bilateral adrenal involvement without any systemic symptoms.