

## MINUTES OF THE ZYGOMYCOSIS WORKING GROUP MEETING AT ISHAM

Tokyo, 27 May 2009

List of participants: George Petrikkos (Greece), Anna Skiada (Greece), Emmanuel Roilides (Greece), Tze Shien Lo (USA), J N Verma (India), Juan Luis Rodriguez Tudela (Spain), Zraznatovskiy Konstantin (Russia), Sinasi Taner Yildiran (Turkey), Roxana Vitale (Argentina), Javier Afeltra (Argentina), Henry Harak (Italy), John Todd (USA), Lena Klingspor (Sweden), Kazuo Satoh (Japan), Mihalis Lionakis (Greece), Beatriz Gomez (USA), David Warnock (USA), Jon Olson (USA), Masagonu Ikeda (Japan), Shawn Lockhart (USA), Tom Chiller (USA), Niranjana Nayak (India), Tamura Kazuo (Japan), Lagrou Katrien (Belgium), Develoux Michel (France), Lily Verma, Retno Wahyuningsih (Indonesia), Tamura Hiroshi (Japan), Anette Fothergill (USA), Deanna A Sutton (USA), Nuri Kiraz (Turkey), Naureen Iqbal (USA), Thomas Walsh (USA), Theoklis Zaoutis (USA), Abhishek Baghela (India), Malcolm Richardson (UK), Nikolay Klimko (Russia), Yoshinari Myoken (Japan), Henrik Euvawg Jensen (Denmark), Mireya Mendoza (Venezuela), Peter Pappas (USA), Hiroshi Kakeya (Japan), Jagdish Chander (India), Jacques Meis (NL), Kung Hsiang-chi (Taiwan)

In his introduction, Prof. G. Petrikkos talked about the initial ECMM Working Group on Zygomycosis, which was formed in 2005. Due to its success it was suggested that the WG become global, under the auspices of both ECMM and ISHAM. There was interest from several countries around the world, including China, India, Argentina and the USA. Among the first to be contacted were Arunaloke Chakrabarti from Chandigarh, India, Roxana Vitale from Buenos Aires, Argentina and Arun Balajee from CDC, USA. During the meeting they talked about epidemiology of zygomycosis in their respective countries, as well as about molecular methods of management. Juan-Luis Rodriguez-Tudela is already a member of the European WG, working in this field as well as on susceptibility testing.

Prof. A. Chakrabarti made a presentation about zygomycosis in India. He made several important observations, ie that the incidence is very high, there is a rising trend in association with uncontrolled diabetes mellitus, emergence of renal zygomycosis and emergence of *Apophysomyces elegans*.

Presenting the geographical distribution of 461 cases of zygomycosis in India, he pointed out that although 70% of cases were reported from Chandigarh, this might be due to better awareness, greater expertise and availability of better facilities. (Mycoses 2007;50:271)

A Zygomycosis registry exists in India. For a case to be defined as zygomycosis it must be Suspected on clinical ground &/or imaging and confirmed on direct microscopical demonstration of broad, aseptate, ribbon-like hyphae with right

angled branching in tissue specimen (histopathology section or aseptically aspirated material from deep tissue) with/ without culture isolation.

Dr. R.Vitale from Buenos Aires, Argentina, presented data about zygomycosis in South America. She actually presented case reports (1 from Chile, 2 from Colombia, 2 from Venezuela, 15 from Brasil and 5 from Argentina). Dr. Vitale concluded that there are not many cases reported from South America, that a registry would be useful in capturing more cases and that more collaborative studies are needed.

Dr Arun Balajee, from the Centers for Disease Control and Prevention in Atlanta, USA, talked about molecular methods for the detection and sub-typing of zygomycetes. She reviewed the various existing methods of diagnosis of zygomycosis, stressing that molecular methods are rapid and accurate. However, she said that there are challenges in assay development:

- Taxonomy is in a state of flux
- Choice of loci vs discriminatory power
- Inadequate/incomplete sequence databases
- Paucity of tissue samples available for development and validation of assay.

For the future, Dr. Balajee proposed a consensus locus for PCR, inter-laboratory studies using PCR methods and creation of a curated, robust sequence database with type or reference isolates, sequences from a wide variety of target species and clean sequences.

She suggested that the role of a zygomycosis WG would be to make a central isolate/DNA repository, to share DNA/data among labs and to better understand the taxonomy of these fungi using a consensus locus.

Finally, Dr. Juan-Luis Rodriguez-Tudela from Madrid, Spain, talked about molecular identification and antifungal susceptibility testing of mucorales, using the EUCAST method for determination of minimum inhibitory concentrations ([www.EUCAST.org](http://www.EUCAST.org)). He presented the data from 38 cases (9 from Austria, 9 from Belgium, 3 from Germany, 10 from Greece and 7 from Spain). Of interest, some species of *Rhizopus* were found to be susceptible to terbinafine in vitro.

Prof. G.Petrikos talked about the ECMM/ISHAM Working Group on Zygomycosis. He made a review of the data from Europe for the years 2005-2007 which were presented at ICAAC, in Tokyo. Prof. Petrikos said that a web page is under construction for better and easier input of new cases. He concluded that collaboration is very important in order to have better understanding of this rare disease.

In the discussion after the lectures, David Warnock from CDC said that although the nominator of the existing database is very good, there is no denominator. It was suggested that it would be useful to find some sub-groups, so as to have some valid denominators.

Interest for collaboration in the Working Group was expressed from many countries, including USA, Argentina, India etc.

Prof. Petrikkos and Dr. A.Skiada promised that as soon as the new web-site is ready, an e-mail will be sent to all participants. In the meantime, anybody who wishes to send a case can do so at the website of the Hellenic Society of Medical Mycology ([www.hsmm.gr](http://www.hsmm.gr)) or the ECMM site ([www.ecmm.org](http://www.ecmm.org)) where he can download the CRF, complete it and send it by e-mail to Prof. G.Petrikkos at [petrikos@med.uoa.gr](mailto:petrikos@med.uoa.gr). Strains will be sent for susceptibility testing to Dr. Rodriguez-Tudela and tissue to Ralph Bialek in Germany for PCR identification (for cases from Europe).

Dr. Balajee will collaborate with Dr. Tudela for typing of all strains.