MOLECULAR EPIDEMIOLOGY OF CHROMOBLASTOMYCOSIS CASUISTIC AGENTS (DEMATIACEOUS FUNGI) FROM AMAZON REGION, BRAZIL

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ABSTRACT:

Chromoblastomycosis (CBM) is chronic mycosis caused by traumatic implantation of dematiaceous fungi in the tissue. The casuistic agent forms muriform cells at tissue and it causes verrucous lesions. Laboratory diagnosis of CBM is made based on muriform cells observation in the mycological direct examination. The incident area of CBM is tropical and subtropical regions, but there are cases in all continents. CBM agents are on the soil, vegetal living or decomposing matter. *Fonsecaea pedrosoi* is the major CBM agent, but molecular analysis leaded to identify new species and other casuistic dematiaceous fungi CBM. Recent molecular data showed *F. perdrosoi* prevalence at Amazon region as well as others regions of Central America and tropical forest domain. Pará state is major responsible of high prevalence from Brazil, although few data about casuistic agents molecular epidemiology are available. This study aimed to identify by molecular analyses the CBM casuistic fungi agents from Pará state, Brazil. We took 23 strains of dematiaceous fungi CBM casuistic agents from Evandro Chagas Institute's Mycology Laboratory fungi library. The strains were cultured in Czapek medium during fifteen days. Then we purified the DNA by physical method and ITS-target was amplified by PCR. The sequencing was carried on by Sanger method. ITS sequences were compared with Genbank using Blast tool. We used MEGA 7 to reconstruct the phylogenetic relationship into strains set using Maxima Likelihood method and the better substitution model indicted by jModel test application. Fifteen out of isolated were identified as *F. pedrosoi*, four as *F. monophora*, one as *Exophiala dermatitidis*, *E. spinifera*, *Cladophialophora bantiana*, and *Toxicocladosporium irritans.* We confirmed high prevalence of *F. pedrosoi* (65.2%), but we reported for first time neurotropic fungi from Amazon region (*F. monophora* (17.4%), *E. dermatitidis* (4.3%), *E. spinifera* (4.3%) and *C. bantiana* (4.3%)). *F. pedrosoi* is high prevalent in Amazon region, but several species can be being misidentified. Previous studies reported CBM cases with cerebral involvement at Brazil for neurotropic fungi. It showed that patients infected by neurotropic CBM fungi mean systemic grave disease risk. We reported a rare CBM due *T. irritans* infection. *In vivo* and *in vitro* studies should confirm pathogenicity and ability to form muriformes cells of these fungi. Our results brought up important and new epidemiological data about Amazon region.

Key-words: Chromoblastomycosis, dematiaceous fungi, molecular identification, phylogeny analysis.