TITLE: FREQUENCY OF NOCARDIA SPECIES ISOLATED IN A PRIVATE HOSPITAL LABORATORY IN THE CITY OF SÃO PAULO

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ABSTRACT:

Nocardia are Gram-positive and weakly alcohol-acid resistant bacteria that cause invasive infections secondary to inhalation of aerosols generated during soil manipulation or penetrating cutaneous traumas. To date there are no reports on the frequency of *Nocardia* species in Brazil. A survey of the laboratory database of all cultures performed in the laboratory and strains received from other laboratories for identification, during the period from January 2011 to May 2019, was carried out and species frequencies were calculated. Species identification was performed by parcial sequencing of the 16S rRNA gene and subsequent comparison with sequences pertaining to reference strains available at GenBank. During the analyzed period, 58 strains of *Nocardia* were identified. From this total, 36% corresponded to strains received from other laboratories. Among the strains detected in cultures from clinical samples performed in our institution, 54% were isolated from respiratory tract samples, 24% from deep extra pulmonary sites or blood and 21% from cutaneous or corneal lesions. Regarding the species frequency, in 15% of the strains it was not possible to define the species due to identical sequence similarity between two or more species. The most frequently detected species in clinical samples were *N. farcinica* (14%) and *N. cyriacigeorgica* (14%), *N. brasiliensis* (10%) and *N. nova* (10%). We also identified 11 species of *Nocardia* not yet described in Brazil in human clinical samples, in indexed literature: *N. niwae, N. testacea, N. abscessus, N. araoensis, N. arthritidis, N. blacklockiae, N. niigatensis, N. otitidiscaviarum, N. pneumoniae, N. pseudobrasiliensis* and *N. takedensis.* Among strains received from other labs for identification, in 19% of the isolates it was not possible to define the species due to identical sequence similarity between two or more species. Contrasting to the species frequency observed in isolates detected in cultures from clinical samples in our lab, *N. cyriacigeorgica* (19%) and N. *asiatica* (14%) were the most frequently identified species among strains referred for identification. *N. farcinica* and *N. cyriacigeorgica* were the most frequently species isolated from clinical samples. *N. niwae, N. testacea, N. abscessus, N. araoensis, N. arthritidis, N. blacklockiae, N. niigatensis, N. otitidiscaviarum, N. pneumoniae, N. pseudobrasiliensis* and *N. takedensis* are reported for the first time to be isolated from human clinical samples from Brazil.

Keywords: Nocardia, molecular identification, 16S rRNA

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