sensibilidad de la dirección del centro por facilitar el desarrollo del proyecto.

Bibliografía


Determination of the invasive capacity of nonpigmented rapidly growing mycobacteria by two different in vitro assays

Determination de la capacidad invasiva de las micobacterias no pigmentadas de crecimiento rápido mediante dos ensayos en vitro diferentes

Dear Editor:

Within the genus Mycobacterium, non-pigmented rapidly growing mycobacteria (NPRGM) are among the most common species of nontuberculous mycobacteria isolated in clinical mycobacteriology laboratories. Most members of this group have been described as causing human infection,1 including nosocomial disease. The most common species implicated in these infections are M. fortuitum, M. chelonae and M. abscessus; in many other cases, these bacteria are not clinically significant. Other members of this group, such as M. peregrinum or M. mucogenicum, are found less often.

Despite the importance of NPRGM as human pathogens, few in vitro studies have investigated the pathogenic mechanisms of these microorganisms and the relationship between these mechanisms and virulence. One study has shown differences in growth characteristics and colony phenotype between pathogenic and non-pathogenic strains of Mycobacterium abscessus.2 In another study using a strain of M. smegmatis as a negative control, Bermudez et al. demonstrated that M. avium invades HEp-2 monolayers.3 Herein, we report the results of a study evaluating the relationships between cellular invasiveness, clinical significance, and colony phenotype of NPRGM strains isolated from human samples, together with collection strains.

The study was carried out with collection strains and clinical strains of NPRGM. The clinical strains were isolated from samples processed for mycobacterial culture in the Mycobacteriology Laboratory of Fundación Jiménez Díaz (Madrid, Spain). Strains were identified according to commonly recommended schemes, using biochemical tests and PCR-restriction enzyme analysis (PRA).4 The clinical significance of the strains was assessed by reviewing the patients’ clinical charts according to internationally accepted criteria.4 For colony phenotype and fibroblast microcolony study, we followed our previously described protocol. To investigate invasion in HEp-2 monolayers, the experiment was developed modifying the method described by Bermudez et al.5 Results were statistically analyzed using a contingency table and the chi-square test.

The 18 collection strains used in the study pertained to 16 different species, and the 74 strains obtained from clinical samples belonged to 5 different species (3 strains of M. abscessus, 24 M. chelonae, 33 M. fortuitum, 6 M. mucogenicum and 8 M. peregrinum). Twenty-four of these strains were considered clinically significant.

In the fibroblast microcolony assay, 35 strains presented rough colonies and only 12 strains showed elongated colonies. All strains but one infected HEp-2 monolayers. Fifteen strains showed counts of 1 to 1000 CFU/mL and 45 strains showed counts of 1000 to 10 000 CFU/mL. Twenty-nine strains had counts of 10 000 to 100 000 CFU/mL and 2 strains, both of them M. chelonae, had counts of more than 100 000 CFU/mL.

The statistical analysis showed no relationship between a rough or smooth phenotype and the capacity to invade fibroblasts or HEp-2 cells. Furthermore, no relationships could be established between the clinical significance of the isolates, and the capability for intracellular penetration or the specific colony phenotype.

The presence of a rough or smooth colony phenotype in conventional agar culture has been suggested as a potential sign of pathogenicity. Several studies performed with M. abscessus2,3 and M. avium6 using in vitro and in vivo models have shown that strains producing rough colonies are pathogenic, whereas those producing a smooth variant are not. Nevertheless, these studies are limited by the small number of strains analyzed. In a preliminary report performed with a small number of clinical isolates, we found that fibroblast invasiveness was not related to the capability of a strain to cause human disease.7 Although in that experiment fibroblast invasiveness seemed to appear in strains isolated from severe disease (bacteremia), in our present study performed in a large number of strains, this preliminary result was not confirmed.

We found that smooth and rough colonies appeared as often in clinically significant strains as in non-significant ones. Therefore, the phenotype does not seem to be associated with the capacity of a strain to produce human infection. No relationship was established between clinical significance and cellular invasiveness in either cell culture model. Only 5 of the 24 clinically significant strains showed elongated microcolonies; hence this characteristic does not seem to be directly related to the capability to produce human infection.
Several experiments have demonstrated that mycobacteria can also invade epithelial cells that are non-professional phagocytes, such as HEp-2 cells. Again, our data indicate that there is no relationship between the capacity to invade HEp-2 cells and the clinical significance of the strain. Our study, using a large number of strains from several species, demonstrated that invasiveness for fibroblast and HEp-2 cells was not related to the clinical significance of the strains; therefore, this capability seems to be a pathogenic factor of minor importance in the development of human disease.

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Conflicts of interest

All authors declare no conflict of interest.

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Hipo incoercible y trastornos de conducta: una presentación atípica de leucoencefalopatía multifocal progresiva por virus de la inmunodeficiencia humana

Persistent hiccup and conduct disorder: An atypical clinical presentation of HIV-associated progressive multifocal leukoencephalopathy

Sr. Editor:

La leucoencefalopatía multifocal progresiva (LMP) es una enfermedad desmielinizante de curso progresivo y evolución rápida de mortal que afecta a entre el 4 y el 8% de los pacientes con sida, con una supervivencia media de 1 a 6 meses al diagnóstico (3,6 meses a 6 meses) (1). A pesar de que su incidencia es baja, es una enfermedad con alta mortalidad. En los últimos años, se ha venido observando un aumento en la incidencia de LMP, lo cual ha sido atribuido a la mejora en el tratamiento antirretroviral, lo que ha prolongado la vida de los pacientes con VIH.

La LMP es una enfermedad de base inmunológica, y se asocia con la presencia de anticuerpos contra virus de la inmunodeficiencia humana (VIH) en el suero. El virus de la leucemia/linfoma de células T humanas (AcVIH) es el virus causal de la LMP en la mayoría de los casos. El virus de la leucemia/linfoma de células T (HIV) es el virus causal de la LMP en los casos en los que no se encuentran anticuerpos contra VIH.

La LMP afecta a pacientes con VIH y sin VIH, y se ha observado que es más frecuente en pacientes con VIH con una carga viral alta y una respuesta inmune inadecuada. La LMP también se ha asociado con la presencia de anticuerpos contra virus de la inmunodeficiencia humana (VIH) en el suero.

Los síntomas de la LMP incluyen fatiga, disminución del rendimiento cognitivo, disminución de la coordinación motora y problemas de sueño. La LMP puede ser diagnóstica de VIH en pacientes con una carga viral alta y una respuesta inmune inadecuada. La LMP también se ha asociado con la presencia de anticuerpos contra virus de la inmunodeficiencia humana (VIH) en el suero.