

Ketoacidosis alone does not predispose to mucormycosis by *Lichtheimia* in a murine pulmonary infection model.

Schulze B, Rambach G, Schwartz VU, Voigt K, Schubert K, Speth C, Jacobsen ID (2017) Ketoacidosis alone does not predispose to mucormycosis by *Lichtheimia* in a murine pulmonary infection model. *Virulence* 8(8), 1657-1667.

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Abstract

Mucormycosis is a rare fungal infection; however, the number of cases increased during the last decades. The main risk factors are immunosuppression and uncontrolled diabetes mellitus. Although *Lichtheimia* species represent a common cause of mucormycosis in Europe, virulence and pathogenesis of this genus has not been investigated in detail yet. Using murine pulmonary infection models, we found that immunosuppression is essential for establishment of infection. The disease was characterized by necrosis, angioinvasion, thrombosis, and the lethal course of infection was associated with systemic activation of platelets. Furthermore, dissemination to internal organs was frequently observed. While the virulence potential of individual *L. corymbifera* and *L. ramosa* isolates differed, pathogenicity of both species was comparable. Although ketoacidosis promoted *Rhizopus* infection in mice, it did not predispose mice to infection with *Lichtheimia* in the absence of additional immunosuppression. This might partially explain the dominance of *Rhizopus* as cause of mucormycosis in countries with high prevalence of ketoacidotic patients.

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