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Commentary

Pediatric Strain of Neglected Endemic Mycoses in Tropical Regions

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DESCRIPTION

Neglected endemic mycoses, including mycetoma, chromoblastomycosis, paracoccidiodomycosis, sporotrichosis are are fungal infections recognized by the World Health Organization as neglected tropical diseases. People in tropical and subtropical areas who live in rural and underprivileged locations are primarily affected by these illnesses. While these diseases are often studied in adults, their impact on pediatric populations is significant and underreported. Children in these regions are particularly vulnerable due to environmental exposure, limited access to healthcare, and delayed diagnoses.

The epidemiology of these mycoses in children varies by region and specific fungal etiology. Pediatric cases of paracoccidioidmycosis, caused by *Paracoccidioides brasiliensis* and *Paracoccidioides lutzii*, are less common but present with acute or subacute forms characterized by fever, lymphadenopathy, hepatosplenomegaly, weight loss, and mucocutaneous lesions. In contrast, mycetoma, chromoblastomycosis and sporotrichosis are more frequently observed in children, especially in areas where agricultural activities are prevalent. These infections often result from traumatic inoculation of fungal spores through skin abrasions.

Clinical manifestations

Mycetoma: A mycetoma is a persistent subcutaneous infection that is typified by three symptoms: numerous sinus tracts, grain-containing discharge, and painless swelling. The illness causes deformities and tissue loss as it advances slowly. In children, mycetoma commonly affects the lower limbs and is often associated with agricultural activities. The causative agents include both fungi and bacteria, with *Madurella mycetomatis* being a common fungal pathogen.

Chromoblastomycosis: Chromoblastomycosis represents as chronic verrucous, or nodular lesions on exposed areas of the skin, suh as the legs or forearms. The infection results from traumatic implantation of dematiaceous fungi, including *Fonsecaea pedrosoi*, *Cladophialophora carrionii*, and *Phialophora verrucosa*. In children, the disease often begins as a small papule or nodule that slowly enlarges, leading to significant tissue damage if left untreated.

Paracoccidioidomycosis: Paracoccidioidomycosis typically affects children as an acute or subacute disseminated disease. Symptoms include fever, weight loss, lymphadenopathy, hepatosplenomegaly, and mucocutaneous lesions. Pulmonary involvement is rare in pediatric cases. Diagnosis is confirmed through culture, histopathology, and serological tests. Treatment often involves prolonged antifungal therapy with itraconazole or trimethoprim-sulfamethoxazole.

Sporotrichosis: Sporotrichosis, caused by species of the *Sporothrix* complex, presents in children as a lymphocutaneous infection following traumatic inoculation. The disease manifests as nodular lesions along lymphatic channels, which may ulcerate over time. *Sporothrix schenckii* and *Sporothrix brasiliensis* are common causative agents. Diagnosis is based on clinical presentation, culture, and histopathological examination.

Diagnosing these mycoses in children is challenging due to the nonspecific nature of initial symptoms and the limited availability of diagnostic facilities in endemic areas. Laboratory confirmation often requires specialized techniques, including fungal cultures, histopathological examination, and molecular methods, which may not be accessible in resource-limited settings. Treatment options are limited and often not tailored for pediatric populations. Antifungal therapies such as itraconazole, amphotericin B, and trimethoprim-sulfamethoxazole are used, but dosing regimens for children are not well-established. The prolonged duration of treatment required for these infections poses adherence challenges, especially in pediatric patients. The public health impact of these mycoses in children is substantial. Chronic infections can lead to significant morbidity, including disability, growth retardation, and social stigma. The economic burden on families and healthcare systems is considerable, as prolonged treatment and potential surgical interventions are often necessary. Moreover, the lack of awareness and education about these diseases contributes to delayed diagnoses and inadequate management.

Keeping people away from environmental sources of illness is the main goal of prevention. These include promoting the use of protective clothing and footwear during agricultural activities, educating communities about the risks of traumatic inoculation, and improving sanitation and hygiene practices. Public health

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campaigns aimed at raising awareness about these diseases can facilitate early detection and treatment. Control strategies also involve strengthening healthcare infrastructure to provide timely and accurate diagnoses and appropriate treatments. Training healthcare providers in endemic regions to recognize the clinical manifestations of these mycoses and to utilize available diagnostic tools is essential. Additionally, research into developing pediatric-specific antifungal therapies and improving diagnostic methods is essential.

CONCLUSION

The pediatric strain of neglected endemic mycoses in tropical regions represents a significant yet underrecognized public health issue. These infections cause considerable morbidity and have long-term effects on children's health and development. Addressing this issue requires a multifaceted approach, including enhanced surveillance, improved diagnostic capabilities, development of pediatric-specific treatment protocols, and public health education initiatives. Collaborative efforts between governments, international organizations, and local communities are essential to mitigate the impact of these diseases on children in endemic regions.