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### Invasive Aspergillosis among Haematological Malignancy Patients in Ghana: A Pilot Study at the National Referral Hospital

#### *Aspergillose Invasive chez les Patients Atteints d'Hémopathie Maligne au Ghana : Une Etude Pilote a l'Hôpital National de Référence*

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#### ABSTRACT

**BACKGROUND:** Invasive aspergillosis (IA) among haematological malignancy patients is rarely diagnosed or studied in many African countries. *Aspergillus* galactomannan (GM) enzyme immunoassay (EIA) utilized in aiding diagnosis is not readily accessible in Ghana. Previous studies have evaluated the IMMY sõna® *Aspergillus* GM lateral flow assay (LFA) and suggested it as a potential alternative to the GM EIA.

**OBJECTIVES:** We aimed to use the LFA in international (EORTC/MSGERC) definitions to obtain preliminary data on IA among patients with haematological malignancies in Ghana with a focus on the prevalence and antifungal prophylaxis.

**METHODS:** We conducted a pilot study among patients with haematological malignancies at the Korle-Bu Teaching Hospital, Ghana using the LFA, culture and computed tomography scan to screen for and classify IA cases according to international definitions.

**RESULTS:** A total of 56 adult patients were recruited including acute leukaemia 14 (25.0%), chronic leukaemia 38 (67.9%), and lymphoma 4 (7.1%). Nine (16.1%) patients had a history of severe neutropenic episodes. All patients were on at least one chemotherapy drug. Three (5.4%) patients met the criteria for IA, comprising two probable IA in acute myeloid leukaemia and one possible IA in non-Hodgkin's lymphoma and constitutes one of five (20%) patients with ongoing severe neutropenia. The LFA was diagnostic in two IA patients. The IA cases were among 49 (87.5%) patients who did not receive antifungal prophylaxis.

**CONCLUSION:** Proactive diagnostic approaches to IA and effective antifungal prophylaxis may be significant in the management of haematological malignancy patients with severe neutropenia in Ghana. **WAJM 2023; 40(6): 613–618.**

**Keywords:** Invasive aspergillosis, Haematological malignancy, Ghana, *Aspergillus* galactomannan, Neutropenia, Antifungal prophylaxis.

#### RÉSUMÉ

**CONTEXTE:** L'aspergillose invasive (AI) parmi les hémopathies malignes est rarement diagnostiquée ou étudiée dans de nombreux pays africains et le dosage immunoenzymatique (EIA) d'*Aspergillus* galactomannane (GM) utilisé pour faciliter le diagnostic n'est pas facilement accessible. Le test à flux latéral (TFL) IMMY sõna® *Aspergillus* GM récemment introduit est évalué et suggéré comme alternative au GM EIA.

**OBJECTIFS:** Nous avons cherché à utiliser les définitions TFA et les définitions internationales (EORTC/MSGERC) pour obtenir des données préliminaires sur l'AI dans les hémopathies malignes au Ghana en mettant l'accent sur la prévalence et la prophylaxie antifongique.

**Méthodes:** Nous avons mené une étude pilote auprès de patients atteints d'hémopathie maligne à l'hôpital universitaire de Korle-Bu, au Ghana, en utilisant le TFL, la culture et la tomomodensitométrie pour dépister et classer les cas d'AI selon les définitions internationales.

**RESULTATS:** Au total, 56 patients adultes ont été recrutés, dont une leucémie aiguë (25 %), une leucémie chronique (67,9 %) et un lymphome (7,1 %), neuf (16,1 %) ayant des antécédents d'épisodes neutropéniques. La plupart des patients (70 %) avaient une maladie évolutive. Trois patients répondaient aux critères d'AI, comprenant deux AI probables et une AI possible, uniquement chez des patients atteints de leucémie aiguë et un sur cinq (20 %) avec une neutropénie en cours. Le TFL était utilisé comme méthode de diagnostic chez deux patients d'AI. Les cas d'AI concernaient tous les 49 (87,5 %) des patients n'ayant pas reçu de prophylaxie antifongique.

**CONCLUSION:** L'AI a probablement une incidence de 5,4 % dans les leucémies, mais de 20 % chez les patients neutropéniques et chez aucun patient recevant une prophylaxie antifongique. Des approches diagnostiques proactives de l'AI et une prophylaxie antifongique efficace peuvent être importantes dans la prise en charge des hémopathies malignes au Ghana. **WAJM 2023; 40(6): 613–618.**

**Mots clés:** Aspergillose invasive, Hémopathie maligne, Ghana, *Aspergillus* galactomannan, Neutropénie, Prophylaxie antifongique.

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