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Diagnostic Utility of EMA, Vimentin and CD117 Immunohistochemical Markers in Subtyping Renal Cell Carcinoma in a Nigerian Tertiary Hospital: A 10-year Retrospective Study.

Utilité Diagnostique des Marqueurs Immunohistochimiques EMA, Vimentine et CD117 dans la Sous-typage du Carcinome à Cellules Rénales Dans un Hôpital Tertiaire Nigérien : Une Étude Rétrospective de 10 ans.

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ABSTRACT

BACKGROUND: Renal cell carcinoma is the most lethal urological cancer and contributes significantly to morbidity and mortality due to cancers of the urogenital tract. In routine diagnostic surgical pathology practice of renal tumours, immunohistochemistry is a helpful ancillary technique after routine H & E. The role of renal immunohistochemistry is explored in this study.

MATERIALS AND METHODS: The paraffin-embedded tissue blocks of all the confirmed cases of renal cell carcinoma seen at the University College Hospital (UCH), Ibadan, during the 10-year study period of 2007 to 2016 were retrieved, sectioned and immunohistochemistry done using monoclonal antibodies for EMA, Vimentin and CD117 following standard protocols. Frequency statistics and chi-square were applied to data to determine proportions and associations using the Statistical Package for the Social Sciences (SPSS) version 23.

RESULTS: A total of 48 cases of renal cell carcinoma were seen within the study period that met the inclusion criteria for the study. The age range of the patients was between 3 to 76 years with an average age of 44.17 years. The male-to-female ratio was 1:1.3. Fuhrman Grade 2 nuclei were predominant (43.75%) while Fuhrman Grade 4 nuclei had the lowest frequency (6.25%). EMA staining patterns for the different histological patterns of RCC showed no statistically significant difference while Vimentin and CD117 staining patterns showed a statistically significant difference. There was no statistically significant difference observed between the staining patterns of all three markers and the nuclear grades of the cases of RCC.

CONCLUSION: This study demonstrated the usefulness of Vimentin and CD117 in differentiating chromophobe variant of renal cell carcinoma from other subtypes while EMA showed variable expression across the various subtypes. **WAJM 2023; 40(10); 1035-1040.**

Keywords: Renal cell carcinoma (RCC), Epithelial membrane antigen (EMA), Vimentin, C-Kit (Tyrosine kinase, CD 117), Haematoxylin and Eosin (H & E).

RÉSUMÉ

CONTEXTE: Le carcinome à cellules rénales est le cancer urologique le plus mortel et contribue de manière significative à la morbidité et à la mortalité liées aux cancers du tractus urogénital. Dans la pratique courante de la pathologie chirurgicale diagnostique des tumeurs rénales, l'immunohistochimie est une technique auxiliaire utile après la coloration H & E (hématoxyline et éosine). Le rôle de l'immunohistochimie rénale est exploré dans cette étude.

MATÉRIEL ET MÉTHODES : Les blocs de tissus inclus en paraffine de tous les cas confirmés de carcinome à cellules rénales observés à l'hôpital universitaire du collège (UCH) d'Ibadan, au cours de la période d'étude de 10 ans de 2007 à 2016, ont été récupérés, sectionnés et soumis à une immunohistochimie en utilisant des anticorps monoclonaux dirigés contre l'EMA, la vimentine et le CD117 suivant des protocoles standard. Des statistiques de fréquence et le test du chi-carré ont été appliqués aux données pour déterminer les proportions et les associations à l'aide du logiciel Statistical Package for the Social Sciences (SPSS) version 23.

RÉSULTATS: Au cours de la période d'étude, un total de 48 cas de carcinome à cellules rénales répondant aux critères d'inclusion de l'étude ont été observés. L'âge des patients variait de 3 à 76 ans, avec un âge moyen de 44,17 ans. Le ratio hommes-femmes était de 1:1,3. Les noyaux de grade Fuhrman 2 étaient prédominants (43,75 %), tandis que les noyaux de grade Fuhrman 4 présentaient la fréquence la plus basse (6,25 %). Les schémas de coloration de l'EMA pour les différentes variantes histologiques du RCC n'ont montré aucune différence statistiquement significative, tandis que les schémas de coloration de la vimentine et du CD117 ont montré une différence statistiquement significative. Aucune différence statistiquement significative n'a été observée entre les schémas de coloration des trois marqueurs et les grades nucléaires des cas de RCC.

CONCLUSION: Cette étude a démontré l'utilité de la vimentine et du CD117 pour différencier la variante chromophobe du carcinome à cellules rénales des autres sous-types, tandis que l'EMA a montré une expression variable dans les différents sous-types. **WAJM 2023; 40(10); 1035-1040.**

Mots-clés: Carcinome à cellules rénales (CCR), antigène membranaire épithélial (EMA), vimentine, C-Kit (tyrosine kinase, CD 117), hématoxyline et éosine (H & E).

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