

THE PREVALENCE OF HER2 IN GASTRIC ADENOCARCINOMA DIAGNOSED AT A TERTIARY LABORATORY IN NORTHERN TSHWANE

Machaka Francis K¹, Mlotshwa Njabulo^{1,2}, Khaba Moshawa C^{1,2}, Mhlongo Lucia^{1,2}, Michelle McCabe^{3,4}, Kgokong Ntebogeng²

¹Sefako Makgatho Health Sciences University, School of Medicine, Pretoria, South Africa

²Department of Anatomical Pathology, Dr George Mukhari Academic Laboratory, National Health Laboratory Service, Pretoria, South Africa

³University of Pretoria, School of Medicine, Pretoria, South Africa

⁴Tshwane Academic District Hospital, National Health Laboratory Service, Pretoria, South Africa

Background: HER2-positive gastric adenocarcinoma represents a distinct molecular subgroup characterised mainly by HER2 amplification and overexpression, with less frequent HER2 gene mutations contributing to tumour growth and progression. The incorporation of targeted therapies such as Trastuzumab has improved outcomes, highlighting the importance of accurate molecular characterisation in guiding treatment. The study aimed to determine the prevalence of HER2 in gastric adenocarcinoma.

Methods and Materials: This was a descriptive and analytical retrospective cross-sectional study that included cases histopathologically diagnosed with gastric adenocarcinoma and sequenced using the Pillar oncoReveal Multi-Cancer with CNV & RNA Fusions Panel between 01 January 2018 to 31 December 2022 at Dr George Mukhari Academic Laboratory to determine the prevalence of HER2 in gastric adenocarcinoma. Data synthesised on Microsoft Excel 365 will be exported to Stata Now Se 18.5 (College Station, Texas 77845 USA).

Results: The study analysed 24 cases; 16 males, 8 females. The median age of presentation was 61 years, with a range of 31-85. The majority of cases (83%) were of normal onset (>40 years), and the rest were of early onset (≤40 years). Of the early onset cases, there was equal sex distribution. The histologic types recorded were 16 intestinal, 7 diffuse and one case was unspecified. Additionally, the degree of differentiation recorded were 11 moderate, 5 well and 7 poorly differentiated. One case was unspecified. The prevalence calculated was 0% HER2-positive gastric adenocarcinomas. A total mutational burden of 52 variants was identified across the cohort, with mutations distributed among 8 distinct genes (CDKN2A, HRAS, FGFR3, STK11, FLNC, GNA11, NPAT and PIK3CB).

Conclusion: The study identified no HER2 alterations in our population; however, the detection of the 8 other mutations warrants further investigation in a larger cohort to elucidate their significance. Furthermore, the increasing incidence of early-onset cases suggests that screening protocols be expanded to include and actively target younger individuals.