

Innovation in Breast Cancer Treatment and its Potential in Pakistan

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Madam, Breast cancer is the second most common cancer globally, following lung cancer. It is a major health concern affecting both men and women, although it is more commonly diagnosed in women. Breast cancer is responsible for a significant number of cancer-related deaths worldwide, as it ranks fifth globally. Breast cancer surpasses all other types of cancer in its worldwide impact, and the occurrence of breast cancer is on the rise.¹ Breast cancer can be divided into histological subtypes depending on the appearance of the cells under the microscope. The most common types include invasive ductal carcinoma, invasive lobular carcinoma, and ductal carcinoma in situ.

A study² conducted in 2022 highlighted the novel approach to inhibit PI3K/AKT pathway using a highly potent oral inhibitor Capivasertib. In preclinical trials it has shown promising outcomes by suppressing tumour growth and reducing the phosphorylation of biomarkers such as PRAS40, GSK3b, and S6. Furthermore, phase I/II trials that evaluated the used of capivasertib along with other antineoplastic agents such as paclitaxel, fulvestrant or Olaparib showed enhanced efficacy with manageable side effects as the toxicity profile was within the acceptable range. Another trial also demonstrated clinically significant activity of capivasertib in rare cancers such as AKT1 E17K-mutated tumour.³

Research conducted in Karachi indicates a notable increase in the prevalence of breast cancer across women of various age groups. Furthermore, the study anticipates a continued upward trend in the coming years.⁴ The study observed not only a rise in the age-specific incidence rate among

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Pakistani women but also forecasted a sustained elevation in the peak age of onset, particularly in post-menopausal women. A substantial concern for Pakistan is reflected in the fact that breast cancer constitutes 28.7% of newly diagnosed cancer cases in women, highlighting the gravity of this health issue.⁵

Researchers have made great strides in the treatment of many types of breast cancer, but the battle continues on many fronts. However, the success of several biological drugs such as Capivasertib in treatment of people with a specific tumour promises the potential targetted treatments in the most vulnerable of regions such as Pakistan.

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References

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin* 2021;71:209-4. doi: 10.3322/caac.21660.
2. Andrikopoulou A, Chatzinikolaou S, Panourgias E, Kaparelou M, Liontos M, Dimopoulos MA, et al. "The emerging role of capivasertib in breast cancer". *Breast* 2022;63:157-6. doi: 10.1016/j.breast.2022.03.018.
3. Kalinsky K, Hong F, McCourt CK, Sachdev JC, Mitchell EP, Zwiebel JA, et al. Effect of Capivasertib in Patients With an AKT1 E17K-Mutated Tumor: NCI-MATCH Subprotocol EAY131-Y Nonrandomized Trial. *JAMA Oncol* 2021;7:271-8. doi: 10.1001/jamaoncol.2020.6741.
4. Zaheer S, Shah N, Maqbool SA, Soomro NM. Estimates of past and future time trends in age-specific breast cancer incidence among women in Karachi, Pakistan: 2004-2025. *BMC Public Health* 2019;19:1001. doi: 10.1186/s12889-019-7330-z.
5. International Agency for Research on Cancer (IARC). Factsheets. [Online] 2024 [Cited 2024 January 06]. Available from URL: <https://gco.iarc.fr/today/data/factsheets/populations/586-pakistan-fact-sheets.pdf>.

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MM: Research proposal, data collection, drafting, final approval.

MWI, SSN: Data analysis, drafting and subsequent revisions, final approval.