Abstract Code: IUC26667-92

Assessment of QRISK®3 and Major Cardiovascular Events in Patients with Metastatic Hormone-Sensitive Prostate Cancer Treated with ADT ± ARPI ± Docetaxel: A Retrospective Cohort Study

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Cardiovascular disease is a major source of morbidity in patients with metastatic hormone-sensitive prostate cancer (mHSPC) receiving androgen deprivation therapy (ADT)-based treatment. Although cardiovascular risk assessment is increasingly recommended before treatment initiation, its integration into routine therapeutic decision-making remains limited. We evaluated baseline cardiovascular risk using QRISK®3 and its association with major adverse cardiovascular events (MACE) in patients receiving ADT-based treatment for mHSPC.

We retrospectively evaluated 206 patients with mHSPC treated with ADT, with or without androgen receptor pathway inhibitors and/or docetaxel, at Portsmouth Hospitals University NHS Trust between 2009 and 2023. Demographic, clinical and cardiovascular variables were collected to calculate baseline QRISK®3. The primary endpoints were the distribution of baseline QRISK®3 categories and the incidence of MACE according to baseline cardiovascular risk. Secondary endpoints included the description of clinical characteristics across QRISK®3 categories, prescribing patterns of GnRH agonists versus antagonists according to cardiovascular risk, and the incidence of MACE within the first 36 months of ADT.

Among 206 patients, 113 (54.9%) were classified as high cardiovascular risk, 82 (39.8%) as intermediate risk and 11 (5.3%) as low risk. Patients with high QRISK®3 experienced a significantly higher incidence of MACE than those with intermediate/low QRISK®3 (17.7%vs6.5%; OR 3.12, 95%CI 1.20-8.14; p=0.020). This association remained significant in the prespecified 36-month landmark analysis (22.0% vs 6.8%; p=0.008), as well as in univariable (HR 2.94, 95%CI 1.16-7.14; p=0.022) and multivariable Cox regression analyses (adjusted HR 3.45, 95%CI 1.33-9.09; p=0.011). Among patients

classified as high cardiovascular risk, only 45.1% were receiving statin therapy at baseline. Likewise, baseline cardiovascular risk did not appear to influence clinicians' choice between GnRH agonists and antagonists, with a comparable distribution of ADT agents across QRISK®3 categories (p=0.588).

More than half of patients initiating ADT for mHSPC had a high baseline cardiovascular risk, which independently identified patients at increased risk of MACE. Nevertheless, cardiovascular risk appeared to have limited influence on routine clinical management, as more than half of high-risk patients were not receiving statin therapy and did not appear to influence clinicians' choice between GnRH agonists and antagonists. These findings support routine cardiovascular risk stratification before ADT initiation.