

Not All Prostate Cancers Are Equally Aggressive

Researchers found that aggressive Gleason grade group 5 prostate cancer has different subtypes with varying risks.

October 16, 2020 By [Sukanya Charuchandra](#)

Considered the most aggressive grade of prostate cancer, Gleason grade group 5 is made up of four different subtypes, researchers reported in the journal *European Urology*. Because not all of these subtypes are equally aggressive, they may require differently targeted treatments.

Prostate cancer is the most common form of solid tumor among men in the United States. Gleason grade group 5 prostate cancer is most likely to lead to metastasis and death. Across the board, people with this type of prostate cancer are subject to intensive treatments. But clinical outcomes are not consistent, and treatment can result in adverse effects.

Amar Kishan, MD, of the University of California, Los Angeles, and colleagues set out to probe the reasons for the variability of treatment response among men with Gleason grade group 5 prostate cancer. They analyzed genetic data from 2,138 people with this type of cancer who had undergone a prostatectomy (prostate removal) and looked for specific patterns.

The researchers identified four different subgroups based on diverse genetic features and risk profiles. One of these groups, making up 15% of the cohort, had genetic traits that were assessed as high risk. These tumors had genetic patterns associated with ramped-up cell growth, metabolism, DNA repair and other aspects. The subgroup with the lowest risk, making up 18% of the population, had genetic patterns that showed an uptick in pathways that control the immune response, blood vessel formation and other developmental processes.

Next, the team went on to validate its findings in two different cohorts with 1,921 and 201 participants, respectively. They identified similar clusters, with varying risks, within the former cohort. These subgroups had genetic patterns that matched those from the first cohort.

For the third and smallest cohort, information on outcomes was available. So the researchers were able to determine that people in the high-risk subgroup took a much shorter time to experience metastasis than people in the other subgroups.

Ultimately, a better understanding of these differences within Gleason grade group 5 prostate

cancer will help physicians create personalized treatments plans and prevent unnecessary adverse outcomes.

[Click here](#) to read the study abstract in European Urology.

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