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Karyopherin Alpha 2 Role in Determining Outcome for Patients with Bladder Cancer: A Systematic Review and Meta-Analysis

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BACKGROUND

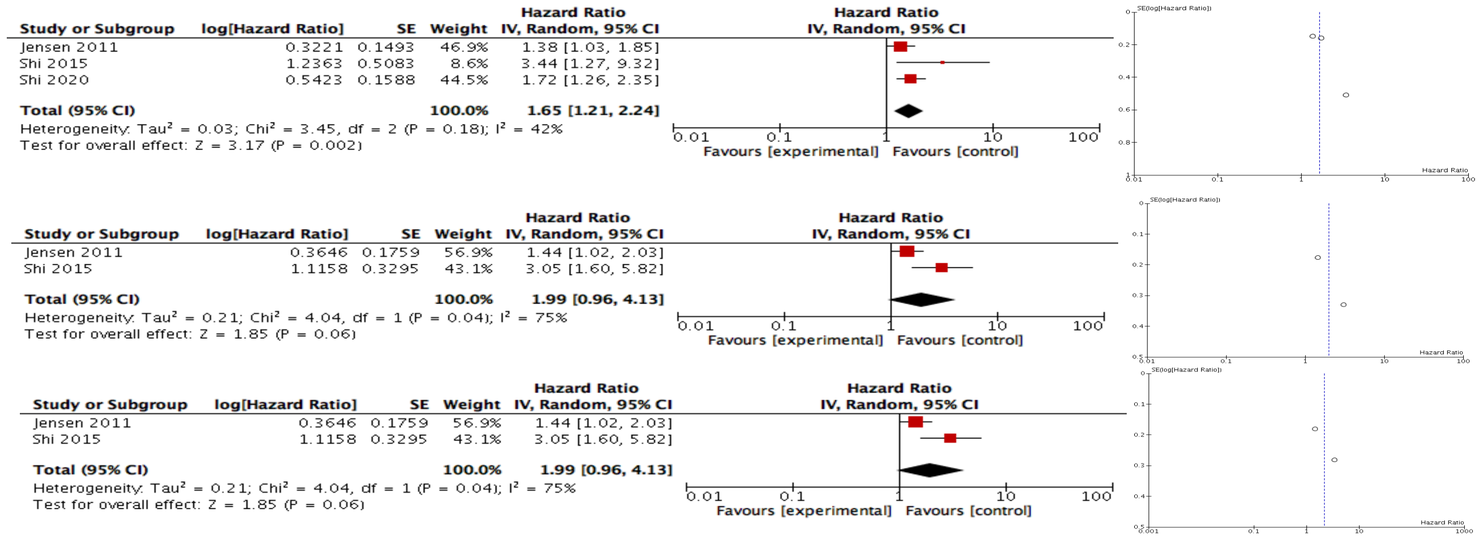
The prognostic variables for bladder cancer recurrence and survival are few and contradictory at this time. KPNA2 is a member of the karyopherin (importin) family. However, there is presently no relevant study on KPNA2 expression in bladder cancer. The objective of this systematic review and meta-analysis is to investigate the predictive value of KPNA2 in bladder tumor patients.

METHODS

According to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline, we ran a comprehensive scientific writing search on the topic of KPNA2 and bladder cancer. From EuroPMC, ScienceDirect, and PubMed, 60,5668 were retrieved by the authors using the search terms of KPNA2, karyopherin alpha 2, prognosis, outcome, bladder, urothelial, "transitional cell", cancer, carcinoma, neoplas*, and tumor. The inclusion criteria are individuals who have bladder cancer with proof of tissue biopsy, reported the status of KPNA2, reported the key exposure, published in full text on the English language, and adult population. We excluded preprints, abstract-only, and any paper considered as grey or white literature. Strong nuclear staining in at least 10% of the carcinoma cells was classified as high KPNA2 expression. The key exposure of this study is disease-free survival (DFS), overall survival (OS), and tumor reccurence. We analyzed the Hazard Ratio (HR) data and reported it as HR along with a 95% confidence interval (CI). The data was analyzed using the random-effects model. In all of the papers reviewed, the Newcastle Ottawa Scale (NOS) was used to assess the overall quality of evidence.

RESULTS AND DISCUSSION

Current study compromises of 1009 sample, with 549 of them were considered low expression of KPNA2. 656 were female and 372 were T1. Current study compromises of 1009 sample, with 549 of them were considered low expression of KPNA2. 656 were female and 372 were T1. From meta-analysis, we found that KPNA2 was associated with DFS (HR 2.16 [0.93, 5.04]; p=0.010); I^2 = 85%) and tumor reccurence (HR 1.99 [0.96, 4.13]; p=0.04); I^2 = 75%), but not with OS (HR 1.65 [1.21, 2.24]; p=0.18); I^2 = 42%).



CONCLUSION

This study demonstrated that KPNA2 was associated with disease-free survival and tumor recurrence, but not overall sruvival rate. However, the authors admit the small study available; henceforth, more studies with larger sample size and prospective design are suggested.

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Conflict of Interest

None