Translational Research in Urology

Home Page: www.transresurology.com

Editorial

Impact of Air Pollution on Urological Cancer

Alireza Khajavi[1*]

[1]*Student Research Committee, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences,*

HIGHLIGHTS

- The air pollution impact on health outcomes such as cardiovascular incidences and mortalities.
- The air pollution-urological cancers association needs to be evaluated through several studies.

ARTICLE INFO

Receive Date: 14 October 2020
Accept Date: 14 November 2020
Avaliable online: 20 November 2020
DOI: 10.22034/TRU.2021.268867.1058

***Corresponding Author**:
Alireza Khajavi
Email: alireza.khajavi.student@gmail.com
Address: Shahid Beheshti University of Medical Sciences, Arabi Ave, Velenjak, Tehran, Iran

ABSTRACT

Air pollution has been a common problem of recent decades, across various parts of the globe. The air pollution impact on health outcomes such as cardiovascular incidences and mortalities and lung and child cancers has been widely investigated and recognized. However, the effect on urological cancers is less studied and still under controversy. The performed studies are mainly implemented in the occupational environments, and there is a lack of knowledge, in the general population. Moreover, the few studies in the general population suffer from short follow-ups and a limited set of controlled confounders. Accordingly, future studies on the air pollution-urological cancers association need to overcome the follow-up and confounding inadequacies and being carried out in the general population.

Keywords: Non-Communicable Disease; Neoplasm; Occupational Studies

Editorial: The Global Burden of Disease (GBD) study estimates 1.6 % of the deaths occurred in 2019 to be caused by urological (including prostate, bladder, kidney, and testicular) cancers. On the other hand, GBD attributes 13.2 % of non-communicable deaths in 2019 to air pollution (1). The impact of air pollution on health outcomes such as cancers and cardiovascular incidence and mortality has been the topic of various studies (2, 3). However, the studied cancers mainly include lung (4), child (5), and breast (6). Despite the outdoor air pollution being recognized as a human carcinogen (7), the increased risk of urological cancers due to outdoor air pollution have majorly been reported in the occupational studies (8, 9). Recently, some studies have been performed on the urological cancers in general population (10-12). Though, the significantly lower levels of air pollution in the general environments than the occupational ones have led to the scarcity of information on the air pollution-urological cancers association, in general population.

A recent systematic review of the air pollution impact on bladder, kidney and urinary tract indicates that the majority of the investigations report positive associations (though majorly non-significant) between air pollution and urological cancers (13). However, this review mentions not addressing the confounders as the common drawback of the studies. Almost half of the studies reviewed in this article have been cohort (9 out of 20), and the insufficient follow-up has been their shared shortcoming.

Conclusions

There is a need for studies with extensive follow-up periods, while including a larger set of confounding

variables.

Authors' contributions
AKH wrote, reviewed and edit the manuscript.

Acknowledgments
Special thanks to the Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Conflict of interest
There is no conflict of interest.

Funding
There is no funding.

Ethical statement
Not applicable.

Data availability
Not applicable.

Abbreviation
GBD Global Burden of Disease

References

1. Collaboration GBoDC. Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life-years for 29 cancer groups, 1990 to 2016: a systematic analysis for the global burden of disease study. JAMA oncology. 2018;4(11):1553-68.
2. Franklin BA, Brook R, Pope III CA. Air pollution and cardiovascular disease. Current problems in cardiology. 2015;40(5):207-38.
3. Turner MC, Krewski D, Diver WR, Pope III CA, Burnett RT, Jerrett M, et al. Ambient air pollution and cancer mortality in the cancer prevention study II. Environmental health perspectives. 2017;125(8):087013.
4. Raaschou-Nielsen O, Andersen ZJ, Beelen R, Samoli E, Stafoggia M, Weinmayr G, et al. Air pollution and lung cancer incidence in 17 European cohorts: prospective analyses from the European Study of Cohorts for Air Pollution Effects (ESCAPE). The lancet oncology. 2013;14(9):813-22.
5. Whitworth KW, Symanski E, Coker AL. Childhood lymphohematopoietic cancer incidence and hazardous air pollutants in southeast Texas, 1995–2004. Environmental Health Perspectives. 2008;116(11):1576-80.
6. White AJ, Bradshaw PT, Hamra GB. Air pollution and breast cancer: a review. Current epidemiology reports. 2018;5(2):92-100.
7. Humans IWGotEoCRt. Outdoor Air Pollution: IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. 2016.
8. Latifovic L, Villeneuve PJ, Parent MÉ, Johnson KC, Kachuri L, Group CCRE, et al. Bladder cancer and occupational exposure to diesel and gasoline engine emissions among Canadian men. Cancer medicine. 2015;4(12):1948-62.
9. Peters CE, Parent M-É, Harris SA, Bogaert L, Latifovic L, Kachuri L, et al. Occupational exposure to diesel and gasoline engine exhausts and the risk of kidney cancer in Canadian men. Annals of work exposures and health. 2018;62(8):978-89.
10. Cohen G, Levy I, Yuval, Kark JD, Levin N, Witberg G, et al. Chronic exposure to traffic-related air pollution and cancer incidence among 10,000 patients undergoing percutaneous coronary interventions: A historical prospective study. European journal of preventive cardiology. 2018;25(6):659-70.
11. Raaschou-Nielsen O, Pedersen M, Stafoggia M, Weinmayr G, Andersen ZJ, Galassi C, et al. Outdoor air pollution and risk for kidney parenchyma cancer in 14 European cohorts. International journal of cancer. 2017;140(7):1528-37.
12. Turner MC, Gracia-Lavedan E, Cirac M, Castaño-Vinyals G, Malats N, Tardon A, et al. Ambient air pollution and incident bladder cancer risk: Updated analysis of the Spanish Bladder Cancer Study. International journal of cancer. 2019;145(4):894-900.
13. Sakhvidi MJZ, Lequy E, Goldberg M, Jacquemin B. Air pollution exposure and bladder, kidney and urinary tract cancer risk: A systematic review. Environmental Pollution. 2020:115328.

Author (s) biosketches
Khajavi A, PhD, Student Research Committee, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
Email: alireza.khajavi.student@gmail.com

How to cite this article
Khajavi A, Impact of Air Pollution on Urological Cancer. Translational Research in Urology. 2020 Nov; 2(4): 135-137.
DOI: 10.22034/TRU.2021.268867.1058
URL: http://www.transresurology.com/article_122889.html