

Journal of Nephrology

Acute Kidney Injury in Xizang Autonomous Region, China: Challenge and Opportunity

Yong A¹, Ya-Hui Yang², Wen Tang^{1,2*}

¹Department of Nephrology, People's Hospital of Xizang Autonomous Region, Xizang, China; ²Department of Nephrology, Peking University Third Hospital, Beijing, China

Correspondence to: Wen Tang, Department of Nephrology, People's Hospital of Xizang Autonomous Region, Xizang, China; Department of Nephrology, Peking University Third Hospital, Beijing, China; Tel: +861082264559, Email: tanggwen@126.com

Received date: Sep 26, 2025; **Accepted date:** Oct 25, 2025; **Published date:** Nov 06, 2025

Citation: Tang W. (2025) Acute Kidney Injury in Xizang Autonomous Region, China: Challenge and Opportunity. *J Nephrol.* 1: 008.

Copyright: © 2025 Tang W, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

INTRODUCTION

Acute Kidney Injury (AKI) is a significant contributor to morbidity and mortality. A nationwide survey in China reported an in-hospital mortality rate of 12.4% for AKI patients but excluded the Xizang Autonomous Region [1]. With an average elevation above 4,000 meters, Xizang presents a unique environment with hypobaric hypoxia. In 2025, Chi-lie, et al. [2] published the first retrospective cohort analysis of AKI in the People's Hospital of Xizang in Xizang Autonomous region, providing much-needed baseline data.

Keywords: Acute kidney injury; High altitude; Xizang; Mortality

ABOUT THE STUDY

Literature Review Evidence on AKI in high-altitude populations remains sparse. Previous studies focused on pregnancy-related AKI, renal physiological adaptation, and renal replacement therapy [3-5]. The prevalence of unrecognized kidney disease also appears to be higher in high-altitude dwellers [6]. The Lhasa analysis is a vital step in filling this data gap. There are several main findings and strengths of the present study. First, this is the first comprehensive dataset from Xizang, filling a long-standing gap. Relatively large cohort study (691 patients), providing a robust descriptive analysis with actionable findings, demonstrating that nephrology referral independently reduced mortality. This is particularly important for resource-limited regions, as it highlights a direct and effective intervention. It is worth noting that recent years have witnessed remarkable progress in the development of nephrology in Xizang Autonomous region, China. A fully-fledged team of kidney specialists has been formed and is stationed throughout the region's various prefectures. To our knowledge, throughout the Xizang autonomous region, there are a total of 177 physicians

engaged in nephrology diagnosis and treatment, including 104 nephrology specialists. Lhasa and Shigatse account for two-thirds of the region's nephrology practitioners and over half of its nephrology specialists (unpublished survey data).

The main limitation of the present study is low diagnostic rate (0.37%), suggesting under-recognition. Given the considerable time span of this research (2014-2023), the results may not fully reflect the contributions of recent advances in AKI diagnosis. Nowadays in Xizang Autonomous Region, China, most hospitals clinically diagnose AKI according to KDIGO standards, with tertiary hospitals constituting the majority. These are primarily concentrated in the Lhasa and Shigatse region. Furthermore, several hospitals have implemented comprehensive AKI management protocols at the institutional level. Three hospitals in Lhasa, two in Shigatse, and one in Nyingchi have installed AKI auxiliary diagnosis systems (unpublished survey data). We believe that the timely identification and diagnosis of AKI will significantly improve in the future.

Another important limitation is that limited exploration of high-altitude mechanisms, such as hypoxia-driven renal injury or polycythemia-related stress in the present study. High-Altitude Polycythemia (HAPC) is a known syndrome in long-term residents, and the kidney is one of the most affected organs [7]. Due to the inherent limitations of retrospective analysis, this study cannot systematically elucidate this issue. This finding underscores the necessity for future research on AKI to adopt a prospective design, with particular emphasis on the role of high-altitude factors.

This first retrospective analysis of AKI in Xizang establishes a baseline understanding of its burden and clinical features in a high-altitude population. While limitations exist, the

findings provide actionable insights, particularly through early recognition and specialist referral. Future efforts should combine multi-center studies, mechanistic exploration, and public health interventions to reduce AKI morbidity and mortality in these regions.

FUTURE PROSPECTIVE

Future research on AKI in Xizang should be guided by several key priorities. First, there is a critical need to establish multi-center, prospective studies to create collaborative registries for collecting representative data. Concurrently, clinical efforts must focus on improving early recognition and referral through the systematic implementation of KDIGO standards and enhanced training for healthcare providers. On a mechanistic level, research should prioritize investigating how high-altitude physiology, particularly chronic hypoxia and oxidative stress, contributes to AKI pathogenesis. Furthermore, longitudinal studies are essential to track long-term patient outcomes, including renal recovery after discharge and the potential progression to Chronic Kidney Disease (CKD). Finally, these clinical and research initiatives must be complemented by robust public health education campaigns aimed at reducing the incidence of community-acquired AKI.

CONCLUSION

This study is a milestone in high-altitude nephrology. Its findings confirm that specialist consultation is a key determinant of survival and highlight the urgent need to improve AKI awareness in non-nephrology departments. Future work should combine clinical epidemiology with mechanistic research to uncover altitude-specific AKI risk factors. The Xizang experience can serve as a model for AKI management in other high-altitude or resource-limited regions

REFERENCES

1. Yang L, Xing G, Wang L, Wu Y, Li S, Xu G, et al. Acute kidney injury in China: A cross-sectional survey. *Lancet*. 2015;386(10002):1465-1471.
2. Chi-Lie LJ, Yang YH, Zhang L, Tang W, A Y. Characteristics of Acute kidney injury in Xizang: A retrospective analysis from the largest tertiary hospital in the Xizang Autonomous region, China. *J Nephrol*. 2025;1-4.
3. Li X, Wu X, Zhang M, Xu L, Li G, Wen Y, et al. Pregnancy-related acute kidney injury at high altitude: A retrospective observational study in a single center. *BMC Nephrol*. 2021;22(1):215.
4. Wang SY, Gao J, Zhao JH. Effects of high altitude on renal physiology and kidney diseases. *Front Physiol*. 2022;13:969456.
5. Wang B, Peng M, Wei H, Liu C, Wang J, Jiang L, et al. The benefits of early continuous renal replacement therapy in critically ill patients with acute kidney injury at high-altitude areas: A retrospective multi-center cohort study. *Sci Rep*. 2023;13(1):14882.
6. Hurtado-Arestegui A, Plata-Cornejo R, Cornejo A, Mas G, Carbajal L, Sharma S, et al. Higher prevalence of unrecognized kidney disease at high altitude. *J Nephrol*. 2018;31(2):263-269.
7. Wang H, Tang C, Dang Z, Yong A, Liu L, Wang S, et al. Clinicopathological characteristics of high-altitude polycythemia-related kidney disease in Tibetan inhabitants. *Kidney Int*. 2022;102(1):196-206.