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Prediction of AKI With a Help of AI

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Acute kidney injury (AKI) greatly contributes to poor outcomes in affected patients, leading to high mortality. The treatment of established AKI lacks specific therapeutics and requires large amount of resources such as continuous replacement therapy and intensive care. Given that a large proportion of in-hospital AKI could be preventable, early prediction and intervention has a pivotal role in the management of patients with a high risk of AKI. Recent advent of big data in medicine and machine learning techniques has triggered the development of diverse prediction models for AKI. Numerous studies of machine learning prediction model for AKI have been published in recent years. Different machine learning algorithms including deep learning have been applied in these studies, showing the improved performance in the prediction of AKI. Nevertheless, findings of recent machine learning studies are limited in several aspects, such as the absence of external validation or calibration, reproducibility, interpretability, and applicability. In this context, many published models might be potentially biased. In addition, many hurdles for clinical application exist. To date, the prediction models for AKI have been rarely tested in real practice. Also, it is unclear how predictions for AKI can be linked to timely intervention. In this presentation, recent studies of prediction for AKI with artificial intelligence will be reviewed with the promises and challenges.