The Predictive Value of Serum Bilirubin in the Post-Transplant De Novo Malignancy: A Data Mining Approach

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Abstract : De novo Malignancy has become one of the major causes of death after transplantation, so early cancer diagnosis and detection can drastically improve survival rates post-transplantation. Most previous work focuses on using artificial intelligence (AI) to predict transplant success or failure outcomes. In this work, we focused on predicting de novo malignancy after liver transplantation using AI. We chose the patients that had malignancy after liver transplantation with no history of malignancy pre-transplant. Their donors were cancer-free as well. We analyzed 254,200 patient profiles with post-transplant malignancy from the US Organ Procurement and Transplantation Network (OPTN). Several popular data mining methods were applied to the resultant dataset to build predictive models to characterize de novo malignancy after liver transplantation. Recipient's bilirubin, creatinine, weight, gender, number of days recipient was on the transplant waiting list, Epstein Barr Virus (EBV), International normalized ratio (INR), and ascites are among the most important factors affecting de novo malignancy after liver transplantation

Keywords : De novo malignancy, bilirubin, data mining, transplantation
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