Instructions for DGF Multi-variable Prediction Model

Welcome to the DGF (Delayed Graft Function) multi-variable prediction model. This tool is designed to assist medical professionals in assessing the risk of DGF after kidney transplantation. Below are the instructions for using this model:

1. Data Input

This model requires input of the following types of data:

1.1 Donor Baseline Characteristics

- Includes information such as age, sex, height, weight, BMI, body surface area, blood type, etc.

1.2 Donor Laboratory Test Results

- Includes history of hypertension and diabetes, infectious diseases, hematological indicators, biochemical indicators, urinalysis, etc.

1.3 Recipient Baseline Characteristics

- Includes sex, age, height, weight, BMI, body surface area, blood type, etiology of nephropathy, etc.

1.4 Recipient Laboratory Test Results

- Includes preoperative dialysis situation, blood pressure, various biochemical indicators, etc.

1.5 Organ Preservation Related Information

- Includes KDPI (Kidney Donor Profile Index), KDRI (Kidney Donor Risk Index), renal artery and vein variations, cold ischemia time, etc.

1.6 Immunology Related Information

- Includes immunoinduction protocols, HLA mismatch number, PRA (Panel Reactive Antibody), etc.

1.7 Matching Related Information

- Includes blood type compatibility, sex matching, age matching, BMI ratio, etc.

2. Data Input Precautions

- Please ensure all variables are filled in and the values are within reasonable ranges.
- Some fields will be automatically calculated based on other inputs, such as BMI and

body surface area. Please check if the calculated results are reasonable.

- For variables that require selection from drop-down menus, please choose the most appropriate option based on the actual situation.

3. Result Calculation

After completing all data inputs, click the "Calculate" button to perform the calculation.

4. Result Interpretation

After calculation, the system will provide two prediction results:

- LightGBM Prediction Result
- XGBoost Prediction Result

These results represent the DGF risk predictions using different models. The result will be displayed as either "正" or "负" means "Positive" or "Negative":

- "正": Indicates that the predicted probability exceeds 0.5, meaning that the case has a higher likelihood of developing DGF (Delayed Graft Function).
- "负": Indicates that the predicted probability does not exceed 0.5, meaning that the case has a relatively lower likelihood of developing DGF.

Interpretation guide:

- If the result shows "正", it means that based on the input data, the model predicts a higher risk of DGF for this case. The medical team may need to take more aggressive preventive measures or closely monitor the post-transplant situation.
- If the result shows "负", it means the model predicts a relatively lower risk of DGF for this case. However, this does not mean there is no risk at all, and the medical team should still follow standard post-operative management procedures.

Please note:

1. LightGBM and XGBoost are two different machine learning algorithms and may produce slightly different prediction results. If the prediction results of the two models are inconsistent, consider the higher possibility of DGF occurrence and conduct a more in-depth clinical assessment.
2. This prediction model should be viewed as an auxiliary tool for clinical decision-making, not as a substitute for professional medical judgment. The final treatment plan should be determined by an experienced medical team based on the patient's specific circumstances.

3. The model's predictions are based on statistical principles. Although the overall accuracy is high, there may be errors in individual cases. Therefore, when using this prediction result, it should be combined with other clinical indicators and the doctor's professional judgment.

5. Other Features

- You can download detailed instruction documents in Chinese or English to get more information about model usage and result interpretation.
- If you have any questions or need assistance, please use the "Contact Us" button to get in touch with us.

Please note that this model is only intended as an auxiliary tool for clinical decision-making. Specific treatment plans still need to be determined by professional medical personnel based on the patient's actual situation.