Data Dictionary

1. PatientMRN: Patient medical record number
2. DateofTransplant: date of liver transplant surgery
3. Admitdate: date admitted to the hospital for surgery
4. dischargedate: date discharged from hospital for surgery
5. IndexLOS: liver transplant length of stay index
6. DOB: date of birth
7. AgeatTx: Age at time of transplant
8. HeightcmatTx: Height in cm at time of transplant
9. WeightkgatTx: weight in kg at time of transplant
10. BMIPre: body mass index pre surgery
11. AscitesYN: 1 - patient has ascites, 0 - patient does not have ascites
12. HE: 1 - patient has Hepatic Encephalopathy, 0 – patient doesn’t have Hepatic Encephalopathy
13. Race: 1 - , 0 -
14. MaleFemaleMale0Female1: 1 – female, 0 - male
15. Smoker: 1 – smoker, 0 – not a smoker
16. CIT: cold ischemia time in hours
17. DRI: donor risk index
18. EtiologyofliverdiseaseNASH0ASH1viral2AI3other4: 0 – Non-alcoholic steatohepatitis (fatty liver disease), 1 – alcoholic steatohepatitis (fatty liver disease), 2 – viral, 3 – AI, 4 - other
19. MELDatTx: Model For End-Stage Liver Disease
20. DaysonVentpostLT: Days on ventilator post liver transplant
21. ACRwithin90d: 1 - Acute cellular rejection within 90 days, 0 – No ACR in 90 days
22. DaysUntilDeath: Days until death (NA means still alive)
23. Dateofdeath: Date of death
24. Newmalignancy: 1 – new malignancy detected, 0 – no new malignancy
25. Surgeryduration: duration of surgery in minutes
26. readmissionin30d: 1 - readmission to hospital within 30 days, 0 – no readmission in 30 days
27. readmissionwithin90d: 1 - readmission to hospital within 90 days, 0 – no readmission in 90 days
28. @#infectionswithin90days: 1 – infection within 90 days, 0 – no infection within 90 days
29. needforrepeatsurgerywithin90daysbasedondatabase: 1 – repeat surgery within 90 days, 0 – no repeat surgery in 90 days
30. vascularcomplicationswithin90day: 1 - vascular complications within 90 days, 0 – no vascular complications within 90 days
31. ICULOS: Intensive Care Unit Length of Stay in days
32. LocationofDChome0SNF1IPR2LTAC3homePT4: location of discharge, 0 – home, 1 – SNF (Skilled nursing facility), 2 – IPR (In-patient Rehabilitation), 3 – LTAC (long term acute care), 4 – home PT (physical therapy)
33. IPR1 - initial portal vein reperfusion
34. biliarycomplications 21bileleak2biloma3stricture4other: 1 – bile leak, 2 – biloma, 3 – stricture, 4 - other
35. Dayssincetransplantbiliarycomplication: days between transplant and biliary complication?
36. Retransplantation: Date of retransplantation
37. Wt01 - weight (kg)
38. Wt02
39. Wt03
40. Wt04
41. Wt05
42. Wt06
43. Wt07
44. Wt08
45. Wt09
46. Wt10
47. SMA00 - Spinal muscular atrophy
48. SMA01
49. SMA02
50. SMA03
51. SMA04
52. SMA05
53. SMA06
54. SMA07
55. SMA08
56. SMA09
57. SMA10
58. Heightm – height in meters
59. Heightm2 - height in meters^2
60. SMI00 - Skeletal muscle mass index
61. SMI01
62. SMI02
63. SMI03
64. SMI04
65. SMI05
66. SMI06
67. SMI07
68. SMI08
69. SMI09
70. SMI10
71. VAT00 – visceral adipose tissue
72. VAT01
73. VAT02
74. VAT03
75. VAT04
76. VAT05
77. VAT06
78. VAT07
79. VAT08
80. VAT09
81. VAT10
82. SAT00 – subcutaneous adipose tissue
83. SAT01
84. SAT02
85. SAT03
86. SAT04
87. SAT05
88. SAT06
89. SAT07
90. SAT08
91. SAT09
92. SAT10
93. SMhu00 - Skeletal Muscle (Hounsfield Units)
94. SMhu01
95. SMhu02
96. SMhu03
97. SMhu04
98. SMhu05
99. SMhu06
100. SMhu07
101. SMhu0
102. SMhu09
103. SMhu10
104. VFhu00 - vertebral fractures (Hounsfield Units)
105. VFhu01
106. VFhu02
107. VFhu03
108. VFhu04
109. VFhu05
110. VFhu06
111. VFhu07
112. VFhu08
113. VFhu09
114. VFhu10
115. SAThu00 - subcutaneous adipose tissue (Hounsfield Units)
116. SAThu01
117. SAThu02
118. SAThu03
119. SAThu04
120. SAThu05
121. SAThu06
122. SAThu07
123. SAThu08
124. SAThu09
125. SAThu10
126. COPD\_pre: Chronic obstructive pulmonary disease
127. HTN\_pre: hypertension
128. DM\_pre: diabetes mellitus
129. CAD\_pre: Coronary Artery Disease
130. CKD\_pre: Chronic kidney disease
131. CTD\_pre: Connective tissue diseases
132. COPD\_post
133. HTN\_post
134. DM\_post
135. CAD\_post
136. CKD\_pos
137. CTD\_post
138. PreTransplantScore
139. PostTransplantScore
140. VATSATratio00

Questions:

1. Only 3 patients with retransplantation date, but 76 indicated need for repeat surgery. Can we assume those patients without retransplantation are waiting on another donor?
2. needforrepeatsurgerywithin90daysbasedondatabase has one value of 6 – do we think this is an error? Does repeat in 90 days mean the surgery took place within 90 days or just that it was determined within the 90 day period a patient would need repeat surgery?
3. For variables towards the end with 00-10 is each number a year? For 00 would this be at the time of the transplant?
4. For pre and post variables, what is the timeline defined by pre and post? When were these measures taken?

Text

Description automatically generated with low confidence

Can we assume this patient’s date of transplant is 2012-02-20?

1. The Donor Risk Index ranges from -0.10733944 - 3.27163737. How can we interpret these values?
2. For 18, is AI autoimmune?
3. Many variables are measured within 90 days? Is this a typical time period range post procedure in research?
4. For the variable Newmalignancy, would this be only for malignancy in the liver or anywhere in the body? Similary would @#infectionswithin90days only refer to infections in the liver?
5. How can I understand the difference between the different levels of LocationofDChome0SNF1IPR2LTAC3homePT4?
6. How is spinal muscular atrophy measured?
7. There is one patient with a Skeletal muscle mass index of 0. Is it correct to assume this value is incorrect?
8. How is visceral adipose tissue measured? Is it possible to have a negative value?
9. How is subcutaneous adipose tissue measured (hu versus non-hu)? Is it possible to have a negative value?
10. VFhu00 is all negative except on value at 335, does this make sense? (VFhu02 – 425)
11. Similarly, SAThu00 is all negative except 165.5. (SAThu02 – 238.8, etc.)

Notes:

5. IndexLOS - Length of stay is an important surrogate for hospital costs and efforts to limit stays can preserve our healthcare resources. 22 factors identified as significant predictors of prolonged hospital stay. The length of stay (LOS) index assigns weighted risk points to each significant factor in a scoring system to predict prolonged hospital stay after liver transplantation with a c-statistic of 0.75 (<https://pubmed.ncbi.nlm.nih.gov/29044759/>).

11. Ascites is a condition in which fluid collects in spaces within your abdomen. The most common cause of ascites is cirrhosis of the liver. Drinking too much alcohol is one of the most common causes of cirrhosis of the liver. Different types of cancer can also cause this condition. Ascites caused by cancer most often occur with advanced or recurrent cancer. Ascites may also be caused by other problems such as heart conditions, dialysis, low protein levels, and infection.

12. Hepatic encephalopathy is a nervous system disorder brought on by severe liver disease. When the liver doesn’t work properly, toxins build up in the blood. These toxins can travel to the brain and affect brain function. People with hepatic encephalopathy may seem confused. Treatments can rid the body of toxins and reverse this temporary condition.

16. Cold ischemia time (CIT) has been widely regarded as a donor-related risk factor and is defined as the time from cross clamping of the donor liver to removal of the organ from cold storage solution

17. Over the last decade, the DRI has served as a useful metric of donor quality and has enhanced our understanding of donor factors and their impact upon recipients. DRI has provided the transplant community with a common language for describing donor organ characteristics and has served as the foundation for several tools for organ risk assessment. It is a useful tool in assessing the interactions of donor factors with recipient factors and their impact on posttransplant outcomes (<https://aasldpubs.onlinelibrary.wiley.com/doi/10.1002/lt.24799>)

19. The MELD score ranges from six to 40 (our data has scores above 40) and is based on results from several lab tests. The higher the number, the more likely you are to receive a liver from a deceased donor when an organ becomes available. MELD scores are based on results from four blood tests that, together, show how well a body is functioning:

* INR (internal normalized ratio): Indicates whether the liver is making the proteins necessary for blood to clot
* Creatinine: Indicates how well the kidneys are working
* Bilirubin: Indicates how well the liver is clearing a substance called bile
* Serum sodium: Indicates how well the body is regulating fluid balance

21. Rejection of the transplant - generally does not impair graft survival. Acute rejection generally improves with steroid boluses and steroid resistant rejection is uncommon.

30. Although vascular complications (VCs) following orthotopic liver transplantation (OLT) seldom occur, they are the most feared complications with a high incidence of both graft loss and mortality, as they compromise the blood flow of the transplant (either inflow or outflow). Diagnosis and therapeutic management of VCs constitute a major challenge in terms of increasing the success rate of liver transplantation.

34. Biliary tract complications are the most common complications after liver transplantation.

* A bile leak is a hole in the bile-duct system that causes bile to spill into the abdominal cavity. Bile is a substance produced by the liver to help digest fat in the food you eat. The gallbladder stores bile and is a small, pear-shaped sac located below your liver in the right upper abdomen.
* Biloma is a rare finding of intrahepatic or extrahepatic bile collection.
* Stricture - an abnormal narrowing of a bodily passage (as from inflammation, cancer, or the formation of scar tissue)

47-57. Spinal muscular atrophy is a genetic disorder that starts in the central nervous system (CNS) and affects all the muscles in the body. Due to the degenerative nature of the disease, people with SMA will experience a decline in muscle strength over time, although the rate and severity can vary among individuals. SMA is caused by a lack of spinal motor neuron (SMN) protein, a protein that’s key for muscle development and movement.

60 -70. Skeletal muscle mass index (SMI) was calculated by dividing the limb skeletal muscle mass (kg) by the square of the height (m2).

71-81. Visceral adipose tissue is a hormonally active component of total body fat, which possesses unique biochemical characteristics that influence several normal and pathological processes in the human body. Abnormally high deposition of visceral adipose tissue is known as visceral obesity. Visceral fat is predominantly found around the organs in the abdominal cavity, such as the liver, intestines and kidneys, as well as in the peritoneum (a serous membrane that lines the outside of the abdominal organs).

82 – 92. Subcutaneous adipose tissue represents about 85% of all body fat. Its major metabolic role is the regulated storage and mobilization of lipid energy. It stores lipid in the form of triacylglycerol (TG), which is mobilized, as required for use by other tissues, in the form of non-esterified fatty acids (NEFA).

The Hounsfield unit (HU) is a relative quantitative measurement of radio density used by radiologists in the interpretation of computed tomography (CT) images.

126 & 132. Chronic obstructive pulmonary disease refers to a group of diseases that cause airflow blockage and breathing-related problems. (<https://pubmed.ncbi.nlm.nih.gov/18756494/>)

127 & 133. High blood pressure (hypertension) is a common condition in which the long-term force of the blood against your artery walls is high enough that it may eventually cause health problems, such as heart disease. Hypertension is a common co-morbidity and a frequent complication in liver transplant patients. (<https://pubmed.ncbi.nlm.nih.gov/21215474/>)

128 & 134. Diabetes mellitus refers to a group of diseases that affect how your body uses blood sugar (glucose). Glucose is vital to your health because it's an important source of energy for the cells that make up your muscles and tissues. It's also your brain's main source of fuel. (<https://www.wjgnet.com/1007-9327/full/v26/i21/2740.htm>)

129 & 135. Coronary artery disease develops when the major blood vessels that supply your heart become damaged or diseased. Cholesterol-containing deposits (plaques) in your coronary arteries and inflammation are usually to blame for coronary artery disease. The coronary arteries supply blood, oxygen and nutrients to your heart. Liver transplant patients are a high risk subgroup for coronary artery disease, even if asymptomatic. (<https://pubmed.ncbi.nlm.nih.gov/20440764/>)

130 & 136. Chronic kidney disease (CKD) means your kidneys are damaged and can't filter blood the way they should. The main risk factors for developing kidney disease are diabetes, high blood pressure, heart disease, and a family history of kidney failure. The burden of chronic kidney disease (CKD) is rising among patients with cirrhosis, though it is not known what impact this has had on outcomes after liver transplantation (LT). (<https://pubmed.ncbi.nlm.nih.gov/31785069/>)

131 & 137. Your connective tissue supports many different parts of your body, such as your skin, eyes, and heart. It is like a "cellular glue" that gives your body parts their shape and helps keep them strong. It also helps some of your tissues do their work. It is made of many kinds of proteins. Cartilage and fat are types of connective tissue. Over 200 disorders that impact connective tissue. There are different types:

* Genetic disorders, such as Ehlers-Danlos syndrome, Marfan syndrome, and osteogenesis imperfecta
* Autoimmune disorders, such as lupus and scleroderma
* Cancers, like some types of soft tissue sarcoma

Each disorder has its own symptoms and needs different treatment. Although advanced liver disease with cirrhosis and liver failure is rare in patients with connective tissue diseases, clinical and biochemical evidence of associated liver abnormalities is common. (<https://pubmed.ncbi.nlm.nih.gov/12352299/>)