**Table 1. General Information of All Datasets.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Training Dataset | Test Dataset-1 | Test Dataset-2 | |
| *Patients* |  |  |  | |
| No. of patients | 170 | 146 | 32 |
| No. of female patients | 64 (37.65) | 62 (42.47) | 7(21.88) |
| Mean age (y)＃ | 50.23 ± 13.77 | 49.04 ± 13.15 | 54.59± 14.29 |
| *Liver conditions* |  |  |  | |
| Reported healthy livers | 61 (35.88) | 50 (34.25) | 27 (84.38) |
| Steatosis | 62 (36.47) | 47 (32.19) | 3 (9.38) |
| Cirrhosis | 47 (27.65) | 49 (33.56) | 2 (6.25) |
| *Focal hepatic lesion* |  |  |
| No | 103 (60.59) | 55 (31.61) | NA |
| Hepatic cyst | 51 (30.00) | 72 (41.38) | 0 |
| Benign lesion | 29 (17.06) | 43 (24.71) | 9 (25.00) |
| Malignant tumor | 4 (2.35) | 14 (8.05) | 29 (75.00) |
| *Total volume of all hepatic lesions (mL)\** | 2.02 ± 4.13  (0.00 - 49.40) | 1.87 ± 7.92  (0.00 - 86.05) | 448.80 ± 608.60 (9.14 – 2426.10) |
| *Imaging system* |  |  |  | |
| GE Light Speed VCT | 39 | NA | NA |
| GE Discovery CT750 HD | 34 | NA | NA |
| GE Revolution | NA | 93 | 14 |
| Philips Briliance iCT 256 | 72 | NA | NA |
| Siemens Definition Flash | 25 | 53 | 18 |
| *Imaging parameters* |  |  |
| section thickness (mm) | 1.0 | 1.0/1.25 | 1.0/1.25 |

Note.- \* Data of total volume are expressed as the means ± standard deviations, data in parentheses are range. # Data of mean age are expressed as the means ± standard deviations. Other data are numbers, with percentages in parentheses. NA=not applicable

**Table 2. Average dice similarity coefficient (DSC) value of Couinaud’s segment in similar studies.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Methods** | **Number of patients** | **images** | **I** | **II** | **III** | **IV** | **V** | **VI** | **VII** | **VIII** | **Mean** |
| **Jia** | 59 | MR | 0.805 | 0.838 | 0.868 | 0.907 | 0.924 | 0.915 | 0.916 | 0.872 | 0.890 |
| **Han** | 100 | MR | **0.932** | 0.922 | 0.910 | 0.922 | 0.881 | 0.875 | 0.893 | 0.881 | 0.902 |
| **Our Method** | 178 | CT | 0.931 | **0.939** | **0.935** | **0.933** | **0.938** | **0.948** | **0.947** | **0.949** | **0.940** |

**Table 3. The Performance of the Model for Volumetry in Four Types of Major Hepatectomy in the Test Dataset.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Volumetry** | **Test Dataset-1** | | | | **Test Dataset-2** |
| **Type 1: Complete right hepatectomy** | **Type 2: Extended right hepatectomy** | **Type 3: Complete left hepatectomy** | **Type 4: Extended left hepatectomy** |
| FLR (M)  FLR (A) | 463.46 ± 150.51  (438.84, 488.08)  454.12 ± 143.78 (430.60, 477.64) | 270.80 ± 102.09  (254.10, 287.50)  258.73 ± 92.77  (243.55, 273.90) | 869.71 ± 243.53 (829.87, 909.54)  864.18 ±243.75  (824.31, 904.05) | 350.40 ± 106.15  (333.03, 367.76)  344.21 ± 98.88  (328.03, 360.38) | 725.99 ± 253.09 (634.74, 817.24)  734.47 ± 263.08  (639.62, 829.32) |
| FLR%(M) | 35.27 ± 7.28  (34.08, 36.46) | 20.81 ± 6.59 (19.73, 21.89) | 65.90 ± 6.97  (64.76, 67.04) | 26.85 ± 6.17 (25.84, 27.86) | 59.19 ±16.56  (53.22, 65.16) |
| FLR%(A) | 35.47 ± 7.16 (34.30, 36.64) | 20.44 ± 6.33  (19.41, 21.48) | 67.12 ± 6.85 (66.00, 68.24) | 27.04 ± 5.42  (26.15, 27.92) | 56.94 ± 16.24  (51.08, 62.80) |
| The absolute difference of FLR% | 0.82 ± 1.23  (0.62, 1.02) | 0.52 ± 1.75 (0.24, 0.81) | 1.45 ± 0.96  (1.29, 1.61) | 1.19 ± 2.41  (0.79, 1.58) | 5.65 ± 5.49  (3.67, 7.63) |

Note.- Data are expressed as the mean ± standard deviation, and data in parentheses are the 95% confidence interval (CI). FLR: future liver remnant; FLR%(M): FLR% obtained by manual segmentation; FLR%(A): FLR% obtained by automated segmentation; The absolute difference of FLR%: the absolute difference of FLR% between manual and automated segmentation.

**Table 4. Number of cases categorized as candidates for major hepatectomy.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Methods** | **Test dataset-1 (n=146)** | | | | **Test dataset-2**  **(n=32)** |
| **Type 1: Complete right hepatectomy** | **Type 2: Extended right hepatectomy** | **Type 3: Complete left hepatectomy** | **Type 4: Extended left hepatectomy** |
| **Manual segmentation** | 107 | 23 | 146 | 57 | 32 |
| **Automated segmentation** | 106 | 23 | 146 | 57 | 32 |