**Supplementary Table S1. Characteristics and quality assessment of the meta-analyses comparing survival outcomes between LDLT and DDLT in recipient patients. Significant associations (P<0.05) are presented in bold. Associations reported in italic are those retained in the main analysis.**

| Outcomes | Author, year | Type of Subjects | No. of studies (T/R/C/P) | No. of LDLT/DDLT | MA metric | Effects model | Risk estimate(95%CI) | P-value | Favours | $I^2$; Q test P value | Egger test P value | AMSTAR 2 final rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-year OS | Zhu et al.[1],2019 | Only HCC patients | 14/0/14/0 | 862/1970 | **RR** | **fixed** | **1.04[1.00 to 1.09]** | **0.03** | LDLT | 36%;0.09 | 0.687 | Critically low |
| 1-year OS | Liang et al.[2],2012 | Only HCC patients | 5/0/5/0 | 233/559 | OR | random | 1.03[0.62 to 1.73] | 0.9 | Equivalent outcomes | 0%;0.60 | NPB | Critically low |
| 3-year OS | Grant et al.[3],2013 | Only HCC patients | 12/0/12/0 | 637/1050 | HR | fixed | 0.97[0.73 to 1.27] | 0.041 | Equivalent outcomes | 5.68%;NR | 0.09 | Critically low |
| 3-year OS | Zhu et al.[1],2019 | Only HCC patients | 14/0/14/0 | 1057/2084 | RR | random | 1.03[0.96 to 1.11] | 0.39 | Equivalent outcomes | 55%;0.007 | 0.687 | Critically low |
| 3-year OS | Liang et al.[2],2012 | Only HCC patients | 7/0/7/0 | 495/788 | OR | random | 1.07[0.77 to 1.48] | 0.69 | Equivalent outcomes | 10%;0.35 | NPB | Critically low |
| *1-year OS* | *Hu et al.[4], 2012* | *HCV-related diseases* | *9/0/9/0* | *231/931* | *OR* | *random* | *0.78[0.48 to 1.26]* | *0.31* | *Equivalent outcomes* | *0%;0.60* | *NPB* | *Moderate* |
| *2-year OS* | *Hu et al.[4], 2012* | *HCV-related diseases* | *6/0/6/0* | *127/509* | *OR* | *random* | *0.71[0.41 to 1.23]* | *0.23* | *Equivalent outcomes* | *0%;0.78* | *NPB* | *Moderate* |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5-year OS | Zhu et al.[1],2019 | Only HCC patients | 17/0/17/0 | 957/3017 | RR | random | 1.04[0.95 to 1.13] | 0.43 | Equivalent outcomes | 64%;0.0002 | 0.687 | Critically low |
| 5-year OS | Liang et al.[2],2012 | Only HCC patients | 4/0/4/0 | 162/578 | OR | random | 0.64[0.33 to 1.24] | 0.18 | Equivalent outcomes | 47%;0.13 | NPB | Critically low |
| *3-year OS* | *Hu et al.[4], 2012* | *HCV-related diseases* | *7/0/7/0* | *346/835* | *OR* | *random* | *0.79[0.55 to 1.12]* | *0.18* | *Equivalent outcomes* | *0%;0.70* | *NPB* | *Moderate* |
| 5-year OS | Elkomos et al.[5],2023 | Only HCC patients | 21/0/21/0 | 2336/3744 | RR | random | 0.99[0.92 to 1.08] | 0.89 | Equivalent outcomes | 75%;＜0.00001 | NPB | Critically low |
| *4-year OS* | *Hu et al.[4], 2012* | *HCV-related diseases* | *3/0/3/0* | *78/397* | *OR* | *random* | *0.92[0.43 to 1.95]* | *0.83* | *Equivalent outcomes* | *36%;0.21* | *NPB* | *Moderate* |
| *5-year OS* | *Hu et al.[4], 2012* | *HCV-related diseases* | *4/0/4/0* | *150/746* | *OR* | *random* | *1.06[0.53 to 2.14]* | *0.86* | *Equivalent outcomes* | *63%;0.04* | *NPB* | *Moderate* |
| *1-year OS* | *Barbetta et al.[6],2021* | *NR* | *19/0/19/0* | *4342/66205* | ***HR*** | ***fixed*** | ***0.83[0.76 to 0.90]*** | ***<0.0001*** | *LDLT* | *52%;0.007* | *NR* | *Critically low* |
| 1-year ITT-OS | Zhu et al.[1],2019 | Only HCC patients | 2/0/2/0 | 142/554 | RR | fixed | 1.01[0.94 to 1.09] | 0.81 | Equivalent outcomes | 0%;0.60 | 0.687 | Critically low |
| *3-year OS* | *Barbetta et al.[6],2021* | *NR* | *17/0/17/0* | *4114/66157* | ***HR*** | ***fixed*** | ***0.85[0.79 to 0.92]*** | ***<0.0001*** | *LDLT* | *47%;0.02* | *NR* | *Critically low* |
| *5-year OS* | *Barbetta et al.[6],2021* | *NR* | *14/0/14/0* | *3892/65828* | ***HR*** | ***fixed*** | ***0.87[0.81 to 0.93]*** | ***<0.0001*** | *LDLT* | *52%;0.01* | *NR* | *Critically low* |
| 3-year ITT-OS | Zhu et al.[1],2019 | Only HCC patients | 2/0/2/0 | 142/554 | RR | fixed | 1.08[0.97 to 1.21] | 0.14 | Equivalent outcomes | 0%;0.71 | 0.687 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *1-year OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *21/0/21/0* | *2380/3665* | ***RR*** | ***random*** | ***1.04[1.01 to 1.07]*** | ***0.01*** | *LDLT* | *46%;0.01* | *NPB* | *Critically low* |
| *2-year OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *14/0/14/0* | *1790/2320* | *RR* | *random* | *1.04[0.96 to 1.14]* | *0.33* | *Equivalent outcomes* | *78%; <0.00001* | *NPB* | *Critically low* |
| 5-year ITT-OS | Zhu et al.[1],2019 | Only HCC patients | 3/0/3/0 | 221/1174 | **RR** | **fixed** | **1.11[1.01 to 1.22]** | **0.04** | LDLT | 0%;0.69 | 0.687 | Critically low |
| *3-year OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *21/0/21/0* | *2336/3744* | *RR* | *random* | *0.99[0.92 to 1.08]* | *0.89* | *Equivalent outcomes* | *75%; <0.00001* | *NPB* | *Critically low* |
| 1-year DFS | Zhu et al.[1],2019 | Only HCC patients | 11/0/11/0 | 941/1235 | RR | random | 1.00[0.95 to 1.05] | 0.99 | Equivalent outcomes | 59%;0.007 | 0.687 | Critically low |
| *4-year OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *12/0/12/0* | *1696/2121* | ***RR*** | ***random*** | ***1.09[1.02 to 1.17]*** | ***0.02*** | *LDLT* | *41%;0.07* | *NPB* | *Critically low* |
| *6-year OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *5/0/5/0* | *1327/675* | *RR* | *random* | *1.14[0.95 to 1.38]* | *0.16* | *Equivalent outcomes* | *83%;0.0001* | *NPB* | *Critically low* |
| 3-year DFS | Grant et al.[3],2013 | Only HCC patients | 12/0/12/0 | 633/1232 | HR | random | 1.59[1.02 to 2.49] | 0.808 | DDLT | 50.07%;NR | 0.23 | Critically low |
| 3-year DFS | Zhu et al.[1],2019 | Only HCC patients | 9/0/9/0 | 534/1124 | RR | fixed | 1.00[0.94 to 1.08] | 0.89 | Equivalent outcomes | 35%;0.14 | 0.687 | Critically low |
| *10-year OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *2/0/2/0* | *962/429* | *RR* | *random* | *1.24[0.92 to 1.67]* | *0.16* | *Equivalent outcomes* | *90%;0.002* | *NPB* | *Critically low* |
| *1-year ITT-OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *5/0/5/0* | *641/2293* | ***RR*** | ***random*** | ***1.14[1.01 to 1.28]*** | ***0.03*** | *LDLT* | *88%; <0.00001* | *NPB* | *Critically low* |
| *2-year ITT-OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *3/0/3/0* | *303/1116* | *RR* | *random* | *1.23[1.00 to 1.50]* | *0.05* | *LDLT* | *85%;0.001* | *NPB* | *Critically low* |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *3-year ITT-OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *5/0/5/0* | *641/2293* | ***RR*** | ***random*** | ***1.26[1.08 to 1.47]*** | ***0.004*** | *LDLT* | *84%; <0.0001* | *NPB* | *Critically low* |
| *4-year ITT-OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *3/0/3/0* | *303/1116* | ***RR*** | ***random*** | ***1.46[1.07 to 1.99]*** | ***0.02*** | *LDLT* | *87%;0.0004* | *NPB* | *Critically low* |
| 1-year OS | Cavalcante et al.[7],2022 | NR | 20/0/20/0 | NR/NR | **HR** | **random** | **1.35[1.10 to 1.66]** | **0.005** | LDLT | 73%;<0.00001 | PB | Critically low |
| 1-year OS | Tang et al.[8],2020 | NR | 18/0/18/0 | 2217/13193 | **OR** | **random** | **1.32[1.01 to 1.72]** | **0.04** | LDLT | 61%;0.0004 | NPB | Critically low |
| 3-year OS | Cavalcante et al.[7],2022 | NR | 21/0/21/0 | NR/NR | **HR** | **random** | **1.26[1.09 to 1.46]** | **0.002** | LDLT | 64%;<0.0001 | PB | Critically low |
| 3-year OS | Tang et al.[8],2020 | NR | 15/0/15/0 | 1851/9393 | **OR** | **random** | **1.39[1.14 to 1.69]** | **0.001** | LDLT | 41%;0.05 | NPB | Critically low |
| *5-year ITT-OS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *5/0/5/0* | *641/2293* | ***RR*** | ***random*** | ***1.37[1.09 to 1.72]*** | ***0.006*** | *LDLT* | *89%; <0.00001* | *NPB* | *Critically low* |
| *1-year DFS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *14/0/14/0* | *2055/1923* | *RR* | *random* | *1.01[0.95 to 1.06]* | *0.79* | *Equivalent outcomes* | *66%;0.0002* | *NPB* | *Critically low* |
| *2-year DFS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *6/0/6/0* | *555/727* | *RR* | *random* | *0.98[0.87 to 1.09]* | *0.69* | *Equivalent outcomes* | *60%;0.03* | *NPB* | *Critically low* |
| 5-year OS | Cavalcante et al.[7],2022 | NR | 19/0/19/0 | NR/NR | **HR** | **random** | **1.27[1.09 to 1.48]** | **0.002** | LDLT | 72%;<0.00001 | PB | Critically low |
| 5-year OS | Tang et al.[8],2020 | NR | 16/0/16/0 | 1647/9759 | **OR** | **random** | **1.33[1.04 to 1.70]** | **0.02** | LDLT | 66%;<0.0001 | NPB | Critically low |
| *3-year DFS* | *Elkomos et al.[5],2023* | *Only HCC patients* | *12/0/12/0* | *1831/1768* | *RR* | *random* | *1.00[0.92 to 1.09]* | *0.98* | *Equivalent outcomes* | *76%; <0.00001* | *NPB* | *Critically low* |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *5-year DFS* | *Zhu et al.[1],2019* | *Only HCC patients* | *13/0/13/0* | *762/1625* | *RR* | *random* | *1.01[0.93 to 1.09]* | *0.85* | *Equivalent outcomes* | *58%;0.005* | *0.687* | *Critically low* |
| *1-year RFS* | *Liang et al.[2],2012* | *Only HCC patients* | *3/0/3/0* | *333/463* | *OR* | *random* | *0.86[0.54 to 1.38]* | *0.54* | *Equivalent outcomes* | *0%;0.58* | *NPB* | *Critically low* |
| *3-year RFS* | *Liang et al.[2],2012* | *Only HCC patients* | *4/0/4/0* | *179/576* | *OR* | *random* | *1.04[0.69 to 1.58]* | *0.84* | *Equivalent outcomes* | *0%;0.82* | *NPB* | *Critically low* |
| *5-year RFS* | *Liang et al.[2],2012* | *Only HCC patients* | *3/0/3/0* | *121/542* | *OR* | *random* | *1.11[0.70 to 1.77]* | *0.65* | *Equivalent outcomes* | *0%;0.65* | *NPB* | *Critically low* |

*MA, meta-analysis; CI, confidence interval; T, total No. of studies; R, randomized controlled trial; C, cohort studies; P, population-based case-control and/or cross-sectional studies; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; OS, overall survival; ITT-OS, intention-to-treat overall survival; DFS, disease-free survival; RFS, recurrence-free survival; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation; NPB, no evidence of publication bias; PB, publication bias.*

**Supplementary Table S2. Available results of the subgroup meta-analyses comparing survival outcomes between LDLT and DDLT in recipient patients. Significant associations (P<0.05) are presented in bold.**

| Subgroup analysis | Classification | Author, year | Diagnosis of the patients | No. of studies | MA metric | Risk estimate[95%CI] | P-value | Favours | $I^2$; Q test P value | AMSTAR final rating |
|---|---|---|---|---|---|---|---|---|---|---|
| **1-year OS** | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Milan criteria** | Within Milan criteria | Zhu et al.[1],2019 | Only HCC patients | 3 | RR | 1.08[0.94 to 1.24] | 0.29 | Equivalent outcomes | 77%; 0.01 | Critically low |
| | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 1.02[0.45 to 2.35] | 0.96 | Equivalent outcomes | 0%; 0.76 | Critically low |
| | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 1.04[0.96 to 1.12] | 0.31 | Equivalent outcomes | 72%; 0.006 | Critically low |
| | Beyond Milan criteria | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 0.74[0.35 to 1.61] | 0.45 | Equivalent outcomes | 0%; 0.98 | Critically low |
| | Beyond Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 4 | RR | 1.02[0.94 to 1.10] | 0.62 | Equivalent outcomes | 0%; 0.73 | Critically low |
| **Sample size** | Sample size ≥300 | Zhu et al.[1],2019 | Only HCC patients | 4 | **RR** | **1.08[1.01 to 1.15]** | **0.03** | LDLT | 64%; 0.04 | Critically low |
| | Sample size < 300 | Zhu et al.[1],2019 | Only HCC patients | 10 | RR | 1.02[0.97 to 1.07] | 0.53 | Equivalent outcomes | 0%; 0.45 | Critically low |
| | Sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 5 | OR | 1.06[0.32 to 3.57] | 0.92 | Equivalent outcomes | 0%; 0.67 | Moderate |
| | Sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.75[0.41 to 1.36] | 0.34 | Equivalent outcomes | 19%; 0.29 | Moderate |
| | LDLT < 100 | Tang et al.[8],2020 | NR | 9 | OR | 1.27[0.90 to 1.77] | 0.17 | Equivalent outcomes | 33%; 0.15 | Critically low |
| | LDLT ≥ 100 | Tang et al.[8],2020 | NR | 9 | **OR** | **1.43[1.02 to 2.01]** | **0.04** | LDLT | 74%; 0.0002 | Critically low |
| **Diagnosis of the patients** | HCC related | Tang et al.[8],2020 | Only HCC patients | 9 | **OR** | **1.68[1.19 to 2.37]** | **0.003** | LDLT | 49%; 0.05 | Critically low |
| | Not HCC related | Tang et al.[8],2020 | Not HCC related | 9 | OR | 1.07[0.87 to 1.32] | 0.5 | Equivalent outcomes | 35%; 0.14 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | Asia | Zhu et al.[1],2019 | Only HCC patients | 6 | RR | 1.08[1.00 to 1.17] | 0.05 | Equivalent outcomes | 51%; 0.07 | Critically low |
| | Asia | Elkomos et al.[5],2023 | Only HCC patients | 11 | RR | 1.03[0.98 to 1.07] | 0.25 | Equivalent outcomes | 44%; 0.06 | Critically low |
| | America | Zhu et al.[1],2019 | Only HCC patients | 6 | RR | 1.04[0.99 to 1.09] | 0.1 | Equivalent outcomes | 39%; 0.14 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 8 | **RR** | **1.06[1.02 to 1.10]** | **0.002** | LDLT | 31%; 0.18 | Critically low |
| | Europe | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 0.99[0.91 to 1.09] | 0.9 | Equivalent outcomes | 44%; 0.13 | Critically low |
| **Perdominant sample proportion** | LDLT | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 2.00[0.72 to 5.53] | 0.18 | Equivalent outcomes | 0%; 0.84 | Critically low |
| | DDLT | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 0.82[0.45 to 1.50] | 0.52 | Equivalent outcomes | 0%; 0,78 | Critically low |
| | Ratio of LDLT/DDLT＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.94[0.31 to 2.84] | 0.91 | Equivalent outcomes | 0%; 0.63 | Moderate |
| | Ratio of LDLT/DDLT＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 6 | OR | 0.76[0.42 to 1.36] | 0.35 | Equivalent outcomes | 8%; 0.37 | Moderate |
| **Study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.70[0.33 to 1.46] | 0.34 | Equivalent outcomes | 0%; 0.76 | Moderate |
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 6 | OR | 0.91[0.44 to 1.87] | 0.8 | Equivalent outcomes | 13%; 0.33 | Moderate |
| **Presence of HCC** | More in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.48[0.21 to 1.13] | 0.09 | Equivalent outcomes | 0%; 0.44 | Moderate |

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|---|---|---|---|---|---|---|---|---|---|---|
| | More in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 1.02[0.56 to 1.87] | 0.94 | Equivalent outcomes | 0%; 0.67 | Moderate |
| **2-year OS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 4 | RR | 1.06[0.97 to 1.16] | 0.22 | Equivalent outcomes | 70%; 0.02 | Critically low |
| | Beyond Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 4 | RR | 1.06[0.95 to 1.18] | 0.33 | Equivalent outcomes | 0%; 0.83 | Critically low |
| **Region** | Asia | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 1.07[1.00 to 1.14] | 0.07 | Equivalent outcomes | 0%; 0.56 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 1.01[0.89 to 1.15] | 0.83 | Equivalent outcomes | 67%; 0.02 | Critically low |
| | Europe | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 0.88[0.64 to 1.22] | 0.44 | Equivalent outcomes | 85%; 0.001 | Critically low |
| **Study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.65[0.18 to 2.39] | 0.52 | Equivalent outcomes | 0%; 0.97 | Moderate |
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.73[0.40 to 1.33] | 0.3 | Equivalent outcomes | 0%; 0.48 | Moderate |
| **Sample size** | Sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.79[0.33 to 1.85] | 0.58 | Equivalent outcomes | 0%; 0.98 | Moderate |
| | Sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.68[0.23 to 2.00] | 0.49 | Equivalent outcomes | 55%; 0.14 | Moderate |
| **Median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.70[0.35 to 1.41] | 0.32 | Equivalent outcomes | 13%; 0.32 | Moderate |
| | After 2001 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.77[0.27 to 2.15] | 0.61 | Equivalent outcomes | 0%; 0.92 | Moderate |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Presence of HCC** | More in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.52[0.25 to 1.10] | 0.09 | Equivalent outcomes | 0%; 0.71 | Moderate |
| | More in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 1.15[0.47 to 2.83] | 0.76 | Equivalent outcomes | 0%; 0.86 | Moderate |
| **Perdominant sample proportion** | Ratio of LDLT/DDLT＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.98[0.44 to 2.16] | 0.96 | Equivalent outcomes | 0%; 0.84 | Moderate |
| | Ratio of LDLT/DDLT＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.53[0.25 to 1.13] | 0.1 | Equivalent outcomes | 0%; 0.64 | Moderate |
| **3-year OS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Zhu et al.[1],2019 | Only HCC patients | 4 | RR | 1.02[0.94 to 1.10] | 0.63 | Equivalent outcomes | 0%; 0.97 | Critically low |
| | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 5 | OR | 0.95[0.57 to 1.58] | 0.83 | Equivalent outcomes | 0%; 0.53 | Critically low |
| | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 1.01[0.88 to 1.16] | 0.88 | Equivalent outcomes | 81%; 0.0002 | Critically low |
| | Beyond Milan criteria Milan criteria | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 1.09[0.80 to 1.47] | 0.59 | Equivalent outcomes | 56%; 0.13 | Critically low |
| | Beyond Milan criteria Milan criteria | Liang et al.[2],2012 | Only HCC patients | 4 | OR | 1.07[0.62 to 1.83] | 0.82 | Equivalent outcomes | 0%; 0.49 | Critically low |
| | Beyond Milan criteria Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 4 | **RR** | **1.16[1.01 to 1.32]** | **0.03** | LDLT | 0%; 0.6 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|
| **UCSF criteria** | Within UCSF criteria | Zhu et al.[1],2019 | Only HCC patients | 3 | RR | 1.08[0.98 to 1.20] | 0.13 | Equivalent outcomes | 0%; 0.38 | Critically low |
| | Beyond Milan criteria UCSF criteria | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 0.75[0.27 to 2.04] | 0.57 | Equivalent outcomes | 0%;0.88 | Critically low |
| **Sample size** | Sample size ≥300 | Zhu et al.[1],2019 | Only HCC patients | 5 | RR | 1.10[0.99 to 1.21] | 0.07 | Equivalent outcomes | 59%; 0.04 | Critically low |
| | Sample size < 300 | Zhu et al.[1],2019 | Only HCC patients | 9 | RR | 0.97[0.90 to 1.05] | 0.45 | Equivalent outcomes | 15%; 0.31 | Critically low |
| | LDLT < 100 | Tang et al.[8],2020 | NR | 8 | OR | 1.17[0.87 to 1.58] | 0.29 | Equivalent outcomes | 0%; 0.70 | Critically low |
| | LDLT ≥ 100 | Tang et al.[8],2020 | NR | 7 | **OR** | **1.52[1.18 to 1.95]** | **0.001** | LDLT | 60%; 0.02 | Critically low |
| **Diagnosis of the patients** | HCC related | Tang et al.[8],2020 | Only HCC patients | 9 | **OR** | **1.55[1.17 to 2.04]** | **0.002** | LDLT | 43%; 0.08 | Critically low |
| | Not HCC related | Tang et al.[8],2020 | Not HCC related | 6 | **OR** | **1.21[0.98 to 1.50]** | **0.07** | LDLT | 0%; 0.75 | Critically low |
| **Region** | Asia | Zhu et al.[1],2019 | Only HCC patients | 6 | RR | 1.11[0.95 to 1.30] | 0.19 | Equivalent outcomes | 82%; 0.0001 | Critically low |
| | Asia | Elkomos et al.[5],2023 | Only HCC patients | 8 | RR | 1.09[0.98 to 1.21] | 0.1 | Equivalent outcomes | 68%; 0.003 | Critically low |
| | America | Zhu et al.[1],2019 | Only HCC patients | 7 | RR | 1.04[0.94 to 1.15] | 0.48 | Equivalent outcomes | 69%; 0.003 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 6 | RR | 1.05[0.93 to 1.18] | 0.45 | Equivalent outcomes | 77%; 0.0005 | Critically low |
| | Europe | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 0.92[0.77 to 1.11] | 0.4 | Equivalent outcomes | 0%; 0.98 | Critically low |

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| | Europe | Elkomos et al.[5],2023 | Only HCC patients | 4 | RR | 1.03[0.95 to 1.13] | 0.46 | Equivalent outcomes | 0%; 0.72 | Critically low |
| **Perdominant sample proportion** | LDLT | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 1.28[0.64 to 2.55] | 0.48 | Equivalent outcomes | 38%; 0.20 | Critically low |
| | DDLT | Liang et al.[2],2012 | Only HCC patients | 4 | OR | 0.87[0.58 to 1.30] | 0.49 | Equivalent outcomes | 0%; 0.85 | Critically low |
| | Ratio of LDLT/DDLT＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.79[0.48 to 1.30] | 0.36 | Equivalent outcomes | 0%; 0.40 | Moderate |
| | Ratio of LDLT/DDLT＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.78[0.47 to 1.29] | 0.33 | Equivalent outcomes | 0%; 0.58 | Moderate |
| **Study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.65[0.18 to 2.39] | 0.22 | Equivalent outcomes | 0%; 0.71 | Moderate |
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.85[0.47 to 1.53] | 0.58 | Equivalent outcomes | 1%; 0.39 | Moderate |
| **Sample size** | Sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.98[0.42 to 2.29] | 0.95 | Equivalent outcomes | 0%; 0.90 | Moderate |
| | Sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.76[0.50 to 1.14] | 0.18 | Equivalent outcomes | 9%; 0.35 | Moderate |
| **Median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.80[0.38 to 1.67] | 0.55 | Equivalent outcomes | 25%; 0.26 | Moderate |
| | After 2001 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.79[0.51 to 1.21] | 0.27 | Equivalent outcomes | 0%; 0.77 | Moderate |
| **Presence of HCC** | More in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.56[0.26 to 1.23] | 0.15 | Equivalent outcomes | 0%; 0.42 | Moderate |

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| | More in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.09[0.63 to 1.89] | 0.75 | Equivalent outcomes | 0%; 0.76 | Moderate |
| **4-year OS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 4 | RR | 1.07[0.92 to 1.25] | 0.39 | Equivalent outcomes | 83%; 0.0005 | Critically low |
| | Beyond Milan criteria Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 4 | **RR** | **1.20[1.04 to 1.38]** | **0.01** | LDLT | 32%; 0.22 | Critically low |
| **Region** | Asia | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 1.08[1.00 to 1.18] | 0.06 | Equivalent outcomes | 0%; 0.81 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 1.11[0.93 to 1.34] | 0.26 | Equivalent outcomes | 54%; 0.11 | Critically low |
| | Europe | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 0.99[0.90 to 1.10] | 0.86 | Equivalent outcomes | 0%; 0.50 | Critically low |
| **Study design** | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.96[0.29 to 3.21] | 0.94 | Equivalent outcomes | 68%; 0.08 | Moderate |
| **Sample size** | Sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.96[0.29 to 3.21] | 0.94 | Equivalent outcomes | 68%; 0.08 | Moderate |
| **Median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.96[0.29 to 3.21] | 0.89 | Equivalent outcomes | 86%; 0.008 | Moderate |
| **Perdominant sample proportion** | Ratio of LDLT/DDLT＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.63[0.29 to 1.33] | 0.22 | Equivalent outcomes | 0%; 0.54 | Moderate |
| **5-year OS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 1.03[0.87 to 1.21] | 0.77 | Equivalent outcomes | 0%; 0.42 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|
| | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 4 | OR | 0.74[0.30 to 1.82] | 0.51 | Equivalent outcomes | 62%; 0.05 | Critically low |
| | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 1.10[0.93 to 1.29] | 0.27 | Equivalent outcomes | 83%; 0.0001 | Critically low |
| | Beyond Milan criteria Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 0.92[0.07 to 12.34] | 0.95 | Equivalent outcomes | 83%; 0.02 | Critically low |
| | Beyond Milan criteria Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 3 | **RR** | **1.32[1.13 to 1.54]** | **0.0006** | LDLT | 0%; 0.79 | Critically low |
| **Sample size** | Sample size ≥300 | Zhu et al.[1],2019 | Only HCC patients | 5 | RR | 1.07[0.92 to 1.25] | 0.38 | Equivalent outcomes | 80%; 0.005 | Critically low |
| | Sample size < 300 | Zhu et al.[1],2019 | Only HCC patients | 12 | RR | 1.01[0.91 to 1.12] | 0.83 | Equivalent outcomes | 44%; 0.05 | Critically low |
| | LDLT < 100 | Tang et al.[8],2020 | NR | 10 | OR | 1.20[0.95 to 1.52] | 0.13 | Equivalent outcomes | 24%; 0.22 | Critically low |
| | LDLT ≥ 100 | Tang et al.[8],2020 | NR | 6 | **OR** | **1.49[1.02 to 2.16]** | **0.04** | LDLT | 81%; < 0.0001 | Critically low |
| **Diagnosis of the patients** | HCC related | Tang et al.[8],2020 | Only HCC patients | 10 | OR | 1.43[1.01 to 2.03] | 0.05 | Equivalent outcomes | 0.0003, I 2 = 71% | Critically low |
| | Not HCC related | Tang et al.[8],2020 | Not HCC related | 6 | OR | 1.15[0.92 to 1.42] | 0.21 | Equivalent outcomes | 0%; 0.64 | Critically low |
| **Region** | Asia | Zhu et al.[1],2019 | Only HCC patients | 6 | RR | 1.11[0.99 to 1.25] | 0.09 | Equivalent outcomes | 25%; 0.25 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|
| | Asia | Elkomos et al.[5],2023 | Only HCC patients | 9 | RR | 1.03[0.95 to 1.12] | 0.41 | Equivalent outcomes | 22%; 0.25 | Critically low |
| | America | Zhu et al.[1],2019 | Only HCC patients | 7 | RR | 1.04[0.98 to 1.11] | 0.22 | Equivalent outcomes | 83%; < 0.0001 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 1.02[0.90 to 1.16] | 0.76 | Equivalent outcomes | 68%; 0.01 | Critically low |
| | Europe | Zhu et al.[1],2019 | Only HCC patients | 3 | RR | 0.97[0.86 to 1.09] | 0.6 | Equivalent outcomes | 0%; 0.71 | Critically low |
| | Europe | Elkomos et al.[5],2023 | Only HCC patients | 4 | RR | 0.87[0.71 to 1.06] | 0.18 | Equivalent outcomes | 58%; 0.07 | Critically low |
| **Perdominant sample proportion** | DDLT | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 0.80[0.51 to 1.26] | 0.34 | Equivalent outcomes | 0%;0.48 | Critically low |
| | Ratio of LDLT/DDLT＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.86[0.40 to 1.88] | 0.71 | Equivalent outcomes | 63%; 0.07 | Moderate |
| **Study design** | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.07[0.37 to 3.15] | 0.9 | Equivalent outcomes | 75%; 0.02 | Moderate |
| **Sample size** | Sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 1.06[0.53 to 2.14] | 0.86 | Equivalent outcomes | 63%; 0.04 | Moderate |
| **Median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.89[0.15 to 5.20] | 0.13 | Equivalent outcomes | 26%; 0.16 | Moderate |
| | After 2001 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 1.21[0.71 to 2.06] | 0.49 | Equivalent outcomes | 0%; 0.48 | Moderate |
| **Presence of HCC** | More in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.39[0.87 to 2.21] | 0.17 | Equivalent outcomes | 0%; 0.45 | Moderate |
| **6-year OS** | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Milan criteria** | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 1.22[0.97 to 1.52] | 0.09 | Equivalent outcomes | 88%; 0.0002 | Critically low |
| | Beyond Milan criteria Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 2 | RR | 1.30[1.03 to 1.64] | 0.02 | Equivalent outcomes | 0%; 0.75 | Critically low |
| **Region** | Asia | Elkomos et al.[5],2023 | Only HCC patients | 2 | RR | 1.06[0.95 to 1.18] | 0.33 | Equivalent outcomes | 0%; 0.83 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 2 | RR | 1.17[0.61 to 2.23] | 0.63 | Equivalent outcomes | 93%; 0.0002 | Critically low |
| **10-year OS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 2 | RR | 1.23[0.83 to 1.84] | 0.3 | Equivalent outcomes | 96%; < 0.00001 | Critically low |
| | Beyond Milan criteria Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 2 | **RR** | **1.42[1.07 to 1.87]** | **0.01** | LDLT | 34%; 0.22 | Critically low |
| **1-year DFS** | | | | | | | | | | |
| **Sample size** | Sample size ≥300 | Zhu et al.[1],2019 | Only HCC patients | 3 | RR | 1.04[0.93 to 1.18] | 0.47 | Equivalent outcomes | 74%; 0.02 | Critically low |
| | Sample size < 300 | Zhu et al.[1],2019 | Only HCC patients | 8 | RR | 0.98[0.93 to 1.04] | 0.5 | Equivalent outcomes | 51%; 0.05 | Critically low |
| **Region** | Asia | Zhu et al.[1],2019 | Only HCC patients | 7 | RR | 1.01[0.93 to 1.10] | 0.75 | Equivalent outcomes | 66%; 0.007 | Critically low |
| | Asia | Elkomos et al.[5],2023 | Only HCC patients | 9 | RR | 1.02[0.95 to 1.09] | 0.6 | Equivalent outcomes | 69%; 0.001 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|
| | America | Zhu et al.[1],2019 | Only HCC patients | 3 | RR | 1.00[0.89 to 1.12] | 0.97 | Equivalent outcomes | 78%; 0.01 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 5 | RR | 0.99[0.89 to 1.09] | 0.78 | Equivalent outcomes | 68%; 0.01 | Critically low |
| **Milan criteria** | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 2 | RR | 0.99[0.89 to 1.10] | 0.86 | Equivalent outcomes | 64%; 0.10 | Critically low |
| **2-year DFS** | | | | | | | | | | |
| **Region** | Asia | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 1.07[0.87 to 1.31] | 0.54 | Equivalent outcomes | 78%; 0.01 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 3 | **RR** | **0.89[0.80 to 0.99]** | **0.03** | DDLT | 0%; 0.95 | Critically low |
| **3-year DFS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 0.95[0.76 to 1.19] | 0.66 | Equivalent outcomes | 47%; 0.17 | Critically low |
| | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 2 | **RR** | **0.93[0.89 to 0.97]** | **0.0006** | DDLT | 6%; 0.30 | Critically low |
| **UCSF criteria** | Within UCSF criteria | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 0.85[0.44 to 1.64] | 0.62 | Equivalent outcomes | 86%; 0.008 | Critically low |
| **Sample size** | Sample size ≥300 | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 1.07[0.93 to 1.22] | 0.35 | Equivalent outcomes | 0%; 0.37 | Critically low |
| | Sample size < 300 | Zhu et al.[1],2019 | Only HCC patients | 7 | RR | 0.99[0.91 to 1.08] | 0.85 | Equivalent outcomes | 52%; 0.05 | Critically low |
| **Region** | Asia | Zhu et al.[1],2019 | Only HCC patients | 3 | RR | 1.01[0.85 to 1.20] | 0.89 | Equivalent outcomes | 52%; 0.13 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|
| | Asia | Elkomos et al.[5],2023 | Only HCC patients | 7 | RR | 1.00[0.88 to 1.14] | 0.98 | Equivalent outcomes | 79%; < 0.0001 | Critically low |
| | America | Zhu et al.[1],2019 | Only HCC patients | 4 | RR | 0.95[0.86 to 1.05] | 0.14 | Equivalent outcomes | 25%; 0.26 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 4 | RR | 0.99[0.84 to 1.16] | 0.85 | Equivalent outcomes | 74%; 0.008 | Critically low |
| | Europe | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 1.08[1.00 to 1.18] | 0.63 | Equivalent outcomes | 0%; 0.41 | Critically low |
| **4-year DFS** | | | | | | | | | | |
| **Region** | Asia | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 1.04[0.95 to 1.15] | 0.39 | Equivalent outcomes | 0%; 0.53 | Critically low |
| | America | Elkomos et al.[5],2023 | Only HCC patients | 2 | **RR** | **0.77[0.64 to 0.91]** | **0.003** | DDLT | 0%; 0.86 | Critically low |
| **5-year DFS** | | | | | | | | | | |
| **Sample size** | Sample size ≥300 | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 1.08[0.93 to 1.26] | 0.31 | Equivalent outcomes | 0%; 0.38 | Critically low |
| | Sample size < 300 | Zhu et al.[1],2019 | Only HCC patients | 11 | RR | 0.98[0.93 to 1.04] | 0.59 | Equivalent outcomes | 62%; 0.003 | Critically low |
| **Region** | Asia | Zhu et al.[1],2019 | Only HCC patients | 6 | RR | 0.98[0.85 to 1.14] | 0.84 | Equivalent outcomes | 69%; 0.006 | Critically low |
| | Asia | Elkomos et al.[5],2023 | Only HCC patients | 10 | RR | 1.00[0.93 to 1.08] | 1 | Equivalent outcomes | 38%; 0.11 | Critically low |
| | America | Zhu et al.[1],2019 | Only HCC patients | 5 | RR | 0.99[0.89 to 1.10] | 0.87 | Equivalent outcomes | 37%; 0.18 | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|
| | America | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 0.97[0.79 to 1.19] | 0.78 | Equivalent outcomes | 78%; 0.01 | Critically low |
| | Europe | Zhu et al.[1],2019 | Only HCC patients | 2 | RR | 1.13[0.97 to 1.31] | 0.12 | Equivalent outcomes | 57%; 0.13 | Critically low |
| | Europe | Elkomos et al.[5],2023 | Only HCC patients | 3 | RR | 1.06[0.98 to 1.14] | 0.18 | Equivalent outcomes | 0%; 0.55 | Critically low |
| **Milan criteria** | Within Milan criteria | Elkomos et al.[5],2023 | Only HCC patients | 2 | RR | 0.96[0.83 to 1.11] | 0.54 | Equivalent outcomes | 47%; 0.17 | Critically low |
| **1-year RFS** | | | | | | | | | | |
| **Milan criteria** | Beyond Milan criteria Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 1.02[0.42 to 2.49] | 0.97 | Equivalent outcomes | 21%; 0.26 | Critically low |
| **Perdominant sample proportion** | DDLT | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 0.98[0.54 to 1.77] | 0.95 | Equivalent outcomes | 0%; 0.42 | Critically low |
| **3-year RFS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 0.91[0.26 to 3.23] | 0.89 | Equivalent outcomes | 40%; 0.20 | Critically low |
| | Beyond Milan criteria Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 1.30[0.66 to 2.57] | 0.45 | Equivalent outcomes | 4%; 0.31 | Critically low |
| **Perdominant sample proportion** | DDLT | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 1.10[0.68 to 1.78] | 0.7 | Equivalent outcomes | 0%; 0.69 | Critically low |
| **5-year RFS** | | | | | | | | | | |
| **Milan criteria** | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 1.10[0.55 to 2.20] | 0.79 | Equivalent outcomes | 0%; 0.34 | Critically low |

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| | Beyond Milan criteria Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 1.03[0.4 to 1.96] | 0.92 | Equivalent outcomes | 0%; 0.92 | Critically low |
| **Perdominant sample proportion** | DDLT | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 1.11[0.70 to 1.77] | 0.65 | Equivalent outcomes | 0%;0.65 | Critically low |

*MA, meta-analysis; CI, confidence interval; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; OS, overall survival; ITT-OS, intention-to-treat overall survival; DFS, disease-free survival; RFS, recurrence-free survival; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation.*

**Supplementary Table S3. Characteristics and quality assessment of the meta-analyses comparing the disease relapse between LDLT and DDLT in recipient patients. Significant associations (P<0.05) are presented in bold. Associations reported in italic are those retained in the main analysis.**

| Outcomes | Author, year | Type of Subjects | No. of studies (T/R/C/P) | No. of LDLT/DDLT | MA metric | Effects model | Risk estimate(95%CI) | P-value | Favours | $I^2$; Q test P value | Egger test P value | AMSTAR 2 final rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-year HCC recurrence rates | Zhu et al.[1],2019 | Only HCC patients | 2/0/2/0 | 178/417 | RR | fixed | 1.41[0.72 to 2.77] | 0.32 | Equivalent outcomes | 0%;0.36 | 0.687 | Critically low |
| *1-year HCC recurrence rates* | *Tang et al.[8],2020* | *Only HCC patients* | *8/0/8/0* | *1201/7480* | *OR* | *random* | *1.00[0.61 to 1.66]* | *0.99* | *Equivalent outcomes* | *72%;0.0007* | *PB* | *Critically low* |
| 1-year HCC recurrence rates | Liang et al.[2],2012 | Only HCC patients | 4/0/4/0 | 190/448 | OR | random | 1.55[0.36 to 6.58] | 0.55 | Equivalent outcomes | 40%;0.17 | NPB | Critically low |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-year HCC recurrence rates | Zhu et al.[1],2019 | Only HCC patients | 2/0/2/0 | 178/417 | RR | fixed | 0.89[0.57 to 1.39] | 0.6 | Equivalent outcomes | 0%;0.41 | 0.687 | Critically low |
| *3-year HCC recurrence rates* | *Tang et al.[8],2020* | *Only HCC patients* | *5/0/5/0* | *751/7261* | *OR* | *random* | *0.86[0.52 to 1.41]* | *0.54* | *Equivalent outcomes* | *78%;0.001* | *PB* | *Critically low* |
| 3-year HCC recurrence rates | Liang et al.[2],2012 | Only HCC patients | 4/0/4/0 | 190/448 | OR | random | 2.57[0.53 to 12.41] | 0.24 | Equivalent outcomes | 72%;0.01 | NPB | Critically low |
| 5-year HCC recurrence rates | Zhu et al.[1],2019 | Only HCC patients | 4/0/4/0 | 291/1183 | RR | random | 0.85[0.56 to 1.31] | 0.47 | Equivalent outcomes | 40%;0.17 | 0.687 | Critically low |
| *5-year HCC recurrence rates* | *Tang et al.[8],2020* | *Only HCC patients* | *8/0/8/0* | *1036/7981* | *OR* | *random* | *0.87[0.54 to 1.38]* | *0.55* | *Equivalent outcomes* | *81%; <0.00001* | *NPB* | *Critically low* |
| *5-year HCC recurrence rates* | *Liang et al.[2],2012* | *Only HCC patients* | *3/0/3/0* | *132/414* | *OR* | *random* | *1.21[0.44 to 3.32]* | *0.71* | *Equivalent outcomes* | *44%;0.17* | *NPB* | *Critically low* |
| *HCC recurrence rates* | *Elkomos et al.[5],2023* | *Only HCC patients* | *16/0/16/0* | *1214/2403* | *RR* | *random* | *1.07[0.77 to 1.48]* | *0.7* | *Equivalent outcomes* | *62%;0.0005* | *NPB* | *Critically low* |
| *Accumulated HCC recurrence rates* | *Zhang et al.[9],2019* | *Only HCC patients* | *7/0/7/0* | *527/781* | ***HR*** | ***NR*** | ***1.51[1.09 to 2.11]*** | ***0.01*** | *DDLT* | *48%;0.07* | *NR* | *Critically low* |
| HCV Recurrence rates | Tang et al.[8],2020 | HCV-related diseases | 4/0/4/0 | 142/664 | OR | random | 1.10[0.39 to 3.10] | 0.86 | Equivalent outcomes | 81%;0.001 | NPB | Critically low |
| *HCV Recurrence rates* | *Hu et al.[4], 2012* | *HCV-related diseases* | *7/0/7/0* | *175/575* | *OR* | *random* | *0.78[0.35 to 1.72]* | *0.53* | *Equivalent outcomes* | *71%;0.002* | *NPB* | *Moderate* |

*MA, meta-analysis; CI, confidence interval; T, total No. of studies; R, randomized controlled trial; C, cohort studies; P, population-based case-control and/or cross-sectional studies; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation; NPB, no evidence of publication bias; PB, publication bias.*

**Supplementary Table S4. Available results of the subgroup meta-analyses comparing the disease relapse between LDLT and DDLT in recipient patients. Significant associations (P<0.05) are presented in bold.**

| Subgroup analysis | Classification | Author, year | Diagnosis of the patients | No. of studies | MA metric | Risk estimate[95%CI] | P-value | Favours | $I^2$; Q test P value | AMSTAR final rating |
|---|---|---|---|---|---|---|---|---|---|---|
| **HCV recurrence** | | | | | | | | | | |
| **Sample size** | DDLT < 100 | Tang et al.[8],2020 | HCV-related diseases | 2 | OR | 1.92[0.95 to 3.87] | 0.07 | Equivalent outcomes | 39%; 0.20 | Critically low |
| | DDLT ≥ 100 | Tang et al.[8],2020 | HCV-related diseases | 2 | OR | 0.62[0.12 to 3.15] | 0.56 | Equivalent outcomes | 87%; 0.006 | Critically low |
| | Sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.63[0.25 to 1.57] | 0.32 | Equivalent outcomes | 47%; 0.13 | Moderate |
| | Sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.01[0.23 to 4.41] | 0.99 | Equivalent outcomes | 87%; 0.0006 | Moderate |
| **Study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.57[0.10 to 3.29] | 0.53 | Equivalent outcomes | 88%; 0.0002 | Moderate |

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|---|---|---|---|---|---|---|---|---|---|---|
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 1.07[0.59 to 1.94] | 0.82 | Equivalent outcomes | 0%; 0.56 | Moderate |
| **Donor age** | Lower in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.99[0.34 to 2.86] | 0.99 | Equivalent outcomes | 71%; 0.01 | Moderate |
| **Median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.68[0.21 to 2.26] | 0.53 | Equivalent outcomes | 62%; 0.07 | Moderate |
| | After 2001 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.85[0.26 to 2.79] | 0.78 | Equivalent outcomes | 81%; 0.001 | Moderate |
| **Presence of Only HCC patients** | More in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.79[0.86 to 3.75] | 0.12 | Equivalent outcomes | 51%; 0.28 | Moderate |
| | More in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.53[0.18 to 1.56] | 0.25 | Equivalent outcomes | 66%; 0.05 | Moderate |
| **Ratio of LDLT/DDLT** | ＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.25[0.66 to 2.38] | 0.49 | Equivalent outcomes | 0%; 0.78 | Moderate |
| | ＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.53[0.14 to 2.09] | 0.37 | Equivalent outcomes | 82%; 0.0007 | Moderate |
| **1-year Only HCC patients recurrence** | | | | | | | | | | |
| **Sample size** | DDLT < 100 | Tang et al.[8],2020 | Only Only HCC patients patients | 3 | **OR** | **0.56[0.35 to 0.91]** | **0.02** | LDLT | 35%; 0.21 | Critically low |
| | DDLT ≥ 100 | Tang et al.[8],2020 | Only HCC patients | 5 | OR | 1.29[0.62 to 2.71] | 0.49 | Equivalent outcomes | 81%; 0.0002 | Critically low |
| **Milan criteria** | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | **OR** | **3.83[1.11 to 13.24]** | **0.03** | DDLT | 0%; 0.86 | Critically low |
| **Perdominant sample proportion** | LDLT | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 6.99[0.87 to 55.92] | 0.07 | Equivalent outcomes | 0%; 0.44 | Critically low |

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| | DDLT | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 0.76[0.17 to 3.45] | 0.73 | Equivalent outcomes | 29%; 0.24 | Critically low |
| **3-year Only HCC patients recurrence** | | | | | | | | | | |
| **Sample size** | DDLT < 100 | Tang et al.[8],2020 | Only HCC patients | 2 | OR | 0.73[0.46 to 1.14] | 0.17 | Equivalent outcomes | 0%; 0.63 | Critically low |
| | DDLT ≥ 100 | Tang et al.[8],2020 | Only HCC patients | 3 | OR | 0.99[0.44 to 2.23] | 0.98 | Equivalent outcomes | 89%; 0.0002 | Critically low |
| **Milan criteria** | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 3 | OR | 4.19[0.57 to 30.82] | 0.16 | Equivalent outcomes | 57%; 0.10 | Critically low |
| | Beyond Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 1.77[0.05 to 66.47] | 0.76 | Equivalent outcomes | 79%; 0.03 | Critically low |
| **Perdominant sample proportion** | LDLT | Liang et al.[2],2012 | Only HCC patients | 2 | **OR** | **20.20[2.66 to 153.38]** | **0.004** | DDLT | 0%; 0.72 | Critically low |
| | DDLT | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 0.83[0.40 to 1.72] | 0.62 | Equivalent outcomes | 0%; 0.45 | Critically low |
| **5-year Only HCC patients recurrence** | | | | | | | | | | |
| | DDLT < 100 | Tang et al.[8],2020 | Only HCC patients | 4 | **OR** | **0.70[0.50 to 0.98]** | **0.04** | LDLT | 0%; 0.56 | Critically low |
| | DDLT ≥ 100 | Tang et al.[8],2020 | Only HCC patients | 4 | OR | 1.19[0.49 to 2.90] | 0.7 | Equivalent outcomes | 91%; < 0.00001 | Critically low |
| **Milan criteria** | Within Milan criteria | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 2.55[0.14 to 45.41] | 0.52 | Equivalent outcomes | 72%; 0.06 | Critically low |
| **Perdominant sample proportion** | DDLT | Liang et al.[2],2012 | Only HCC patients | 2 | OR | 0.91[0.47 to 1.73] | 0.76 | Equivalent outcomes | 0%; 0.94 | Critically low |

*MA, meta-analysis; CI, confidence interval; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation.*

**Supplementary Table S5. Characteristics and quality assessment of the meta-analyses comparing the survival of graft between LDLT and DDLT. Significant associations (P<0.05) are presented in bold. Associations reported in italic are those retained in the main analysis.**

| Outcomes | Author, year | Type of Subjects | No. of studies (T/R/C/P) | No. of LDLT/DDLT | MA metric | Effects model | Risk estimate(95%CI) | P-value | Favours | $I^2$; Q test P value | Egger test P value | AMSTAR 2 final rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-year graft survival | Cavalcante et al.[7],2022 | NR | 9/0/9/0 | NR/NR | **HR** | **fixed** | **1.36[1.16 to 1.60]** | **0.0001** | LDLT | 0%;0.90 | PB | Critically low |
| *1-year Graft Survival* | *Barbetta et al.[6],2021* | *NR* | *7/0/7/0* | *3186/58781* | *HR* | *fixed* | *0.94[0.87 to 1.02]* | *0.14* | *Equivalent outcomes* | *59%;0.02* | *NR* | *Critically low* |
| *1-year Graft Survival* | *Hu et al.[4], 2012* | *HCV-related diseases* | *8/0/8/0* | *225/917* | ***OR*** | ***random*** | ***0.61[0.39 to 0.96]*** | ***0.03*** | *DDLT* | *3%;0.40* | *NPB* | *Moderate* |
| *2-year Graft Survival* | *Hu et al.[4], 2012* | *HCV-related diseases* | *6/0/6/0* | *127/509* | *OR* | *random* | *0.61[0.37 to 1.02]* | *0.06* | *Equivalent outcomes* | *0%;0.56* | *NPB* | *Moderate* |
| 3-year graft survival | Cavalcante et al.[7],2022 | NR | 9/0/9/0 | NR/NR | HR | fixed | 1.13[0.96 to 1.33] | 0.13 | Equivalent outcomes | 34%;0.15 | PB | Critically low |

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| *3-year Graft Survival* | *Barbetta et al.[6],2021* | *NR* | *8/0/8/0* | *3263/59025* | *HR* | *fixed* | *0.96[0.89 to 1.03]* | *0.25* | *Equivalent outcomes* | *53%;0.04* | *NR* | *Critically low* |
| *3-year Graft Survival* | *Hu et al.[4], 2012* | *HCV-related diseases* | *7/0/7/0* | *349/841* | ***OR*** | ***random*** | ***0.66[0.48 to 0.92]*** | ***0.01*** | *DDLT* | *0%;0.55* | *NPB* | *Moderate* |
| *4-year Graft Survival* | *Hu et al.[4], 2012* | *HCV-related diseases* | *3/0/3/0* | *78/397* | *OR* | *random* | *0.74[0.31 to 1.78]* | *0.51* | *Equivalent outcomes* | *56%;0.10* | *NPB* | *Moderate* |
| 5-year graft survival | Cavalcante et al.[7],2022s | NR | 7/0/7/0 | NR/NR | HR | random | 0.99[0.74 to 1.33] | 0.96 | Equivalent outcomes | 78%;0.0001 | PB | Critically low |
| *5-year Graft Survival* | *Barbetta et al.[6],2021* | *NR* | *6/0/6/0* | *3062/58625* | *HR* | *fixed* | *0.95[0.88 to 1.01]* | *0.12* | *Equivalent outcomes* | *63%;0.02* | *NR* | *Critically low* |
| *5-year Graft Survival* | *Hu et al.[4], 2012* | *HCV-related diseases* | *4/0/4/0* | *153/752* | *OR* | *random* | *0.85[0.42 to 1.73]* | *0.66* | *Equivalent outcomes* | *68%;0.03* | *NPB* | *Moderate* |
| *Graft loss due to HCV recurrence* | *Hu et al.[4], 2012* | *HCV-related diseases* | *3/0/3/0* | *337/4065* | *OR* | *random* | *1.15[0.49 to 2.68]* | *0.75* | *Equivalent outcomes* | *23%;0.27* | *NPB* | *Moderate* |

*MA, meta-analysis; CI, confidence interval; T, total No. of studies; R, randomized controlled trial; C, cohort studies; P, population-based case-control and/or cross-sectional studies; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation; NPB, no evidence of publication bias; PB, publication bias.*

**Supplementary Table S6. Available results of the subgroup meta-analyses comparing the survival of graft between LDLT and DDLT in recipient patients. Significant associations (P<0.05) are presented in bold.**

| Subgroup analysis | Classification | Author, year | Diagnosis of the patients | No. of studies | MA metric | Risk estimate[95%CI] | P-value | Favours | $I^2$; Q test P value | AMSTAR final rating |
|---|---|---|---|---|---|---|---|---|---|---|
| **1-year graft survival** | | | | | | | | | | |
| **recipients' age** | <50 year | Cavalcante et al.[7],2022 | NR | 3 | **HR** | **1.31[1.08 to 1.59]** | **0.007** | LDLT | 0%; NR | Critically low |
| | ≥50 year | Cavalcante et al.[7],2022 | NR | 3 | HR | 1.15[0.61 to 2.18] | 0.66 | Equivalent outcomes | 0%; NR | Critically low |
| **study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 3 | **OR** | **0.46[0.24 to 0.87]** | **0.02** | DDLT | 0%; 0.75 | Moderate |
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 5 | OR | 0.81[0.40 to 1.62] | 0.55 | Equivalent outcomes | 25%; 0.25 | Moderate |
| **sample size** | sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.66[0.22 to 1.95] | 0.45 | Equivalent outcomes | 0%; 0.58 | Moderate |
| | sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.64[0.33 to 1.23] | 0.45 | Equivalent outcomes | 0%; 0.58 | Moderate |
| **median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.52[0.25 to 1.05] | 0.07 | Equivalent outcomes | 0%; 0.43 | Moderate |
| | after 2001 | Hu et al.[4], 2012 | HCV-related diseases | 5 | OR | 0.71[0.34 to 1.46] | 0.35 | Equivalent outcomes | 23%; 0.27 | Moderate |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Presence of HCC** | more in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | **OR** | **0.42[0.19 to 0.94]** | **0.03** | DDLT | 0%; 0.55 | Moderate |
| | more in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.82[0.43 to 1.55] | 0.53 | Equivalent outcomes | 22%; 0.28 | Moderate |
| **Ratio of LDLT/DDLT** | ＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.75[0.28 to 2.00] | 0.56 | Equivalent outcomes | 0%; 0.76 | Moderate |
| | ＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 5 | OR | 0.61[0.31 to 1.22] | 0.16 | Equivalent outcomes | 39%; 0.16 | Moderate |
| **2-year graft survival** | | | | | | | | | | |
| **study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.41[0.12 to 1.36] | 0.15 | Equivalent outcomes | 0%; 0.49 | Moderate |
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.67[0.38 to 1.18] | 0.17 | Equivalent outcomes | 0%; 0.40 | Moderate |
| **sample size** | sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.59[0.27 to 1.27] | 0.18 | Equivalent outcomes | 0%; 0.60 | Moderate |
| | sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.65[0.24 to 1.74] | 0.39 | Equivalent outcomes | 52%; 0.15 | Moderate |
| **median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.74[0.35 to 1.54] | 0.42 | Equivalent outcomes | 27%; 0.26 | Moderate |
| | after 2001 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.45[0.18 to 1.10] | 0.08 | Equivalent outcomes | 0%; 0.77 | Moderate |
| **Presence of HCC** | more in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.57[0.28 to 1.17] | 0.12 | Equivalent outcomes | 0%; 0.44 | Moderate |
| | more in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.83[0.37 to 1.88] | 0.66 | Equivalent outcomes | 0%; 0.37 | Moderate |

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|---|---|---|---|---|---|---|---|---|---|---|
| **Ratio of LDLT/DDLT** | ＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.04[0.49 to 2.22] | 0.92 | Equivalent outcomes | 0%; 0.87 | Moderate |
| | ＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | **OR** | **0.40[0.20 to 0.79]** | **0.009** | DDLT | 0%; 0.87 | Moderate |
| **3-year Graft Survival** | | | | | | | | | | |
| **recipients' age** | <50 year | Cavalcante et al.[7],2022 | NR | 3 | HR | 1.04[0.79 to 1.36] | 0.8 | Equivalent outcomes | 64%; NR | Critically low |
| | ≥50 year | Cavalcante et al.[7],2022 | NR | 3 | HR | 1.13[0.68 to 1.86] | 0.64 | Equivalent outcomes | 5%; NR | Critically low |
| **study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 3 | **OR** | **0.63[0.42 to 0.96]** | **0.03** | DDLT | 0%; 0.75 | Moderate |
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.74[0.38 to 1.43] | 0.37 | Equivalent outcomes | 30%; 0.24 | Moderate |
| **sample size** | sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.83[0.39 to 1.79] | 0.63 | Equivalent outcomes | 0%; 0.80 | Moderate |
| | sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | **OR** | **0.64[0.41 to 0.98]** | **0.04** | DDLT | 26%; 0.25 | Moderate |
| **median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.66[0.38 to 1.17] | 0.15 | Equivalent outcomes | 37%; 0.19 | Moderate |
| | after 2001 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.72[0.43 to 1.23] | 0.23 | Equivalent outcomes | 0%; 0.99 | Moderate |
| **Presence of HCC** | more in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.59[0.18 to 1.91] | 0.38 | Equivalent outcomes | 55%; 0.14 | Moderate |

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| | more in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.84[0.51 to 1.39] | 0.5 | Equivalent outcomes | 0%; 0.60 | Moderate |
| **Ratio of LDLT/DDLT** | ＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.80[0.43 to 1.49] | 0.48 | Equivalent outcomes | 30%; 0.24 | Moderate |
| | ＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 4 | **OR** | **0.60[0.38 to 0.96]** | **0.03** | DDLT | 0%; 0.62 | Moderate |
| **4-year Graft Survival** | | | | | | | | | | |
| **study design** | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.79[0.19 to 3.18] | 0.74 | Equivalent outcomes | 78%; 0.03 | Moderate |
| **sample size** | sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.79[0.19 to 3.18] | 0.74 | Equivalent outcomes | 78%; 0.03 | Moderate |
| **median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.79[0.19 to 3.18] | 0.74 | Equivalent outcomes | 78%; 0.03 | Moderate |
| **Ratio of LDLT/DDLT** | ＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 2 | **OR** | **0.48[0.23 to 0.97]** | **0.04** | DDLT | 0%; 0.48 | Moderate |
| **5-year Graft Survival** | | | | | | | | | | |
| **recipients' age** | <50 year | Cavalcante et al.[7],2022 | NR | 3 | HR | 0.89[0.58 to 1.35 ] | 0.57 | Equivalent outcomes | 87%; NR | Critically low |
| | ≥50 year | Cavalcante et al.[7],2022 | NR | 2 | HR | 0.81[0.45 to 1.46 ] | 0.49 | Equivalent outcomes | 74%; NR | Critically low |
| **study design** | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.89[0.30 to 2.60] | 0.82 | Equivalent outcomes | 78%; 0.01 | Moderate |

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|---|---|---|---|---|---|---|---|---|---|---|
| **sample size** | sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.85[0.42 to 1.73] | 0.66 | Equivalent outcomes | 68%; 0.03 | Moderate |
| **median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.78[0.11 to 5.46] | 0.81 | Equivalent outcomes | 88%; 0.003 | Moderate |
| | after 2001 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.89[0.55 to 1.45] | 0.65 | Equivalent outcomes | 0%; 0.65 | Moderate |
| **Presence of HCC** | more in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.12[0.65 to 1.93] | 0.69 | Equivalent outcomes | 35%; 0.22 | Moderate |
| **Ratio of LDLT/DDLT** | ＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 0.66[0.33 to 1.32] | 0.24 | Equivalent outcomes | 59%; 0.09 | Moderate |
| **Graft loss due to HCV recurrence** | | | | | | | | | | |
| **study design** | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 1.10[0.12 to 9.91] | 0.93 | Equivalent outcomes | 57%; 0.13 | Moderate |
| **sample size** | sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.96[0.37 to 2.49] | 0.93 | Equivalent outcomes | 35%; 0.22 | Moderate |
| **median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.15[0.49 to 2.68] | 0.75 | Equivalent outcomes | 23%; 0.27 | Moderate |
| **Ratio of LDLT/DDLT** | ＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 3 | OR | 1.15[0.49 to 2.68] | 0.75 | Equivalent outcomes | 23%; 0.27 | Moderate |

*MA, meta-analysis; CI, confidence interval; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation.*

**Supplementary Table S7. Characteristics and quality assessment of the meta-analyses comparing the perioperative outcomes between LDLT and DDLT.**

**Significant associations (P<0.05) are presented in bold. Associations reported in italic are those retained in the main analysis.**

| Outcomes | Author, year | Type of Subjects | No. of studies (T/R/C/P) | No. of LDLT/DDLT | MA metric | Effects model | Risk estimate(95%CI) | P-value | Favours | $I^2$; Q test P value | Egger test P value | AMSTAR 2 final rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Time on Waiting List* | *Barbetta et al.[6],2021* | *NR* | *8/0/8/0* | *3237/58900* | ***MD*** | ***random*** | ***-71.43[-101.42 to -41.44]*** | ***<0.00001*** | *LDLT* | *97%; < 0.00001* | *NR* | *Critically low* |
| *MELD score at transplant* | *Barbetta et al.[6],2021* | *NR* | *14/0/14/0* | *3776/59399* | ***MD*** | ***random*** | ***-2.54[-5.02 to -0.06]*** | ***0.04*** | *LDLT* | *98%; < 0.00001* | *NR* | *Critically low* |
| CIT | Tang et al.[8],2020 | NR | 6/0/6/0 | 1608/3234 | **WMD** | **random** | **-373.39[-399.41 to -347.37]** | **<0.00001** | LDLT | 96%; < 0.00001 | PB | Critically low |
| *CIT* | *Wan et al.[10],2014* | *NR* | *7/0/7/0* | *886/724* | ***MD*** | ***random*** | ***-346.28[-417.1 to -275.46]*** | ***<0.00001*** | *LDLT* | *99%; < 0.00001* | *NPB* | *Low* |
| Allogeneic RBC Transfusion | Tang et al.[8],2020 | NR | 4/0/4/0 | 294/1029 | WMD | fixed | 0.69[-0.14 to 1.51] | 0.1 | Equivalent outcomes | 0%;0.71 | NPB | Critically low |
| *Allogeneic RBC Transfusion* | *Wan et al.[10],2014* | *NR* | *5/0/5/0* | *354/524* | *MD* | *random* | *-0.85[-3.37 to 1.66]* | *0.51* | *Equivalent outcomes* | *72%;0.006* | *NPB* | *Low* |
| DRO | Tang et al.[8],2020 | NR | 4/0/4/0 | 858/6844 | **WMD** | **fixed** | **141.68[129.19 to 154.16]** | **<0.00001** | DDLT | 47%;0.13 | NPB | Critically low |
| *DRO* | *Wan et al.[10],2014* | *NR* | *5/0/5/0* | *634/555* | ***MD*** | ***random*** | ***2.80[2.18 to 3.42]*** | ***<0.00001*** | *DDLT* | *76%;0.003* | *NPB* | *Low* |
| Length of Hospital Stay | Tang et al.[8],2020 | NR | 4/0/4/0 | 611/6861 | WMD | fixed | 1.82[-0.91 to 4.56] | 0.19 | Equivalent outcomes | 0%;0.61 | NPB | Critically low |

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| Length of Hospital Stay | Barbetta et al.[6],2021 | NR | 8/0/8/0 | 3640/65065 | MD | random | -3.80[-8.36 to 0.76] | 0.1 | Equivalent outcomes | 95%; < 0.00001 | NR | Critically low |
| *Length of Hospital Stay* | *Wan et al.[10],2014* | *NR* | *4/0/4/0* | *606/605* | *MD* | *fixed* | *-1.37[-4.37 to 1.64]* | *0.37* | *Equivalent outcomes* | *48%;0.12* | *NPB* | *Low* |
| *Perioperative mortality within 3 months* | *Zhu et al.[1],2019* | *Only HCC patients* | *7/0/7/0* | *474/1017* | *RR* | *fixed* | *0.89[0.50 to 1.59]* | *0.7* | *Equivalent outcomes* | *34%;0.17* | *0.687* | *Critically low* |
| perioperative mortality rates | Tang et al.[8],2020 | NR | 10/0/10/0 | 2174/16547 | OR | fixed | 1.03[0.81 to 1.29] | 0.82 | Equivalent outcomes | 39%;0.10 | NPB | Critically low |
| *Perioperative mortality rates* | *Wan et al.[10],2014* | *NR* | *4/0/4/0* | *790/843* | *OR* | *fixed* | *1.23[0.80 to 1.89]* | *0.34* | *Equivalent outcomes* | *49%;0.12* | *NPB* | *Low* |

*MA, meta-analysis; CI, confidence interval; T, total No. of studies; R, randomized controlled trial; C, cohort studies; P, population-based case-control and/or cross-sectional studies; MD, mean difference; WMD, weighted mean difference; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation; NPB, no evidence of publication bias; PB, publication bias; CIT, cold ischemia time; RBC, red blood cell; DRO, duration of the recipient operation;*

**Supplementary Table S8. Available results of the subgroup meta-analyses comparing the perioperative outcomes between LDLT and DDLT in recipient patients. Significant associations (P<0.05) are presented in bold.**

| Subgroup analysis | Classification | Author, year | Diagnosis of the patients | No. of studies | MA metric | Risk estimate[95%CI] | P-value | Favours | $I^2$; Q test P value | AMSTAR final rating |
|---|---|---|---|---|---|---|---|---|---|---|
| **CIT** | | | | | | | | | | |
| **Sample size** | DDLT < 400 | Tang et al.[8],2020 | NR | 3 | **MD** | **-371.10[-373.60 to -368.60]** | **< 0.00001** | LDLT | 37%; 0.20 | Critically low |
| | DDLT ≥ 400 | Tang et al.[8],2020 | NR | 3 | **MD** | **-372.02[-445.71 to -298.34]** | **< 0.00001** | LDLT | 97%; < 0.00001 | Critically low |
| **transplant area** | Western | Wan et al.[10],2014 | NR | 4 | **MD** | **-414.03[-465.94 to -362.12]** | **<0.001** | LDLT | 87%; < 0.001 | Low |
| | Eastern | Wan et al.[10],2014 | NR | 3 | **MD** | **-235.42[-244.88 to -225.97]** | **<0.001** | LDLT | 0%; 0.56 | Low |
| **DRO** | | Wan et al.[10],2014 | | | | | | | | |
| **study design** | Prospective cohort | Wan et al.[10],2014 | NR | 2 | **MD** | **3.60[2.98 to 4.22]** | **<0.001** | DDLT | 0%; >0.99 | Low |
| | Retrospective cohort | Wan et al.[10],2014 | NR | 3 | **MD** | **2.32[2.06 to 2.59]** | **<0.001** | DDLT | 22%; 0.28 | Low |
| **Allogeneic RBC transfusion requirement** | | | | | | | | | | |
| **study design** | Prospective cohort | Wan et al.[10],2014 | NR | 2 | MD | -3.54[-11.74 to 4.67] | 0.4 | Equivalent outcomes | 62%; 0.10 | Low |
| | Retrospective cohort | Wan et al.[10],2014 | NR | 3 | MD | 0.81[-0.21 to 1.83] | 0.12 | Equivalent outcomes | 0%; 0.53 | Low |

*MA, meta-analysis; CI, confidence interval; MD, mean difference; RR, relative risk; OR, odds ratio; HR, hazard ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation; CIT, cold ischemia time; RBC, red blood cell; DRO, duration of the recipient operation.*

**Supplementary Table S9. Characteristics and quality assessment of the meta-analyses comparing the postoperative complications and retransplantation rate between LDLT and DDLT. Significant associations (P<0.05) are presented in bold. Associations reported in italic are those retained in the main analysis.**

| Outcomes | Author, year | Type of Subjects | No. of studies (T/R/C/P) | No. of LDLT/DDLT | MA metric | Effects model | Risk estimate(95%CI) | P-value | Favours | $I^2$; Q test P value | Egger test P value | AMSTAR 2 final rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Postoperative Intra-Abdominal Bleeding Rates | Tang et al.[8],2020 | NR | 6/0/6/0 | 1137/7179 | **OR** | **fixed** | **0.64[0.46 to 0.88]** | **0.006** | LDLT | 8%;0.37 | NPB | Critically low |
| *Postoperative Intra-Abdominal Bleeding Rates* | *Wan et al.[10],2014* | *NR* | *3/0/3/0* | *599/552* | *OR* | *fixed* | *0.72[0.43 to 1.20]* | *0.21* | *Equivalent outcomes* | *32%;0.23* | *NPB* | *Low* |
| Hepatic Artery Thrombosis | Barbetta et al.[6],2021 | NR | 7/0/7/0 | 483/846 | OR | random | 2.07[0.84 to 5.09] | 0.11 | Equivalent outcomes | 0%;0.99 | NR | Critically low |
| Vascular Complications | Tang et al.[8],2020 | NR | 6/0/6/0 | 828/1142 | **OR** | **fixed** | **2.00[1.31 to 3.07]** | **0.001** | DDLT | 45%;0.11 | NPB | Critically low |
| *Vascular Complications* | *Wan et al.[10],2014* | *NR* | *4/0/4/0* | *702/659* | ***OR*** | ***fixed*** | ***2.16[1.32 to 3.54]*** | ***0.002*** | *DDLT* | *0%;0.73* | *NPB* | *Low* |
| Biliary Complications | Tang et al.[8],2020 | NR | 14/0/14/0 | 1916/9362 | **OR** | **random** | **2.23[1.59 to 3.13]** | **<0.00001** | DDLT | 77%;< 0.00001 | PB | Critically low |
| Biliary Complications | Barbetta et al.[6],2021 | NR | 11/0/11/0 | 1159/7489 | **OR** | **random** | **2.14[1.76 to 2.59]** | **<0.00001** | DDLT | 0%;0.60 | NR | Critically low |
| *Biliary Complications* | *Wan et al.[10],2014* | *NR* | *8/0/8/0* | *687/1819* | ***OR*** | ***random*** | ***3.08[1.97 to 4.81]*** | ***<0.00001*** | *DDLT* | *63%;0.008* | *NPB* | *Low* |
| *Risk of Infection* | *Barbetta et al.[6],2021* | *NR* | *8/0/8/0* | *859/7084* | *OR* | *random* | *0.67[0.42 to 1.09]* | *0.11* | *Equivalent outcomes* | *75%;0.0002* | *NR* | *Critically low* |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Acute rejection episodes* | *Hu et al.[4], 2012* | *HCV-related diseases* | *11/0/11/0* | *379/873* | *OR* | *random* | *0.83[0.53 to 1.30]* | *0.41* | *Equivalent outcomes* | *37%;0.10* | *0.032* | *Moderate* |
| *Rejection* | *Barbetta et al.[6],2021* | *NR* | *11/0/11/0* | *1292/7881* | ***OR*** | ***random*** | ***0.72[0.55 to 0.95]*** | ***0.02*** | *LDLT* | *0%;0.58* | *NR* | *Critically low* |
| *Complications* | Zhu et al.[1],2019 | *Only HCC patients* | *2/0/2/0* | *78/147* | *RR* | *fixed* | *0.99[0.70 to 1.39]* | *0.94* | *Equivalent outcomes* | *0%;0.34* | *0.687* | *Critically low* |
| Retransplantation Rate | Tang et al.[8],2020 | NR | 8/0/8/0 | 725/2257 | OR | fixed | 1.29[0.87 to 1.93] | 0.21 | Equivalent outcomes | 29%;0.20 | NPB | Critically low |
| *Retransplantation Rate* | *Wan et al.[10],2014* | *NR* | *7/0/7/0* | *455/1440* | ***OR*** | ***fixed*** | ***1.76[1.09 to 2.83]*** | ***0.02*** | *DDLT* | *25%;0.24* | *NPB* | *Low* |

MA, meta-analysis; CI, confidence interval; T, total No. of studies; R, randomized controlled trial; C, cohort studies; P, population-based case-control and/or cross-sectional studies; RR, relative risk; OR, odds ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation; NPB, no evidence of publication bias; PB, publication bias.

**Supplementary Table S10. Available results of the subgroup meta-analyses comparing the postoperative complications and retransplantation rate between LDLT and DDLT in recipient patients. Significant associations (P<0.05) are presented in bold.**

| Subgroup analysis | Classification | Author, year | Diagnosis of the patients | No. of studies | MA metric | Risk estimate[95%CI] | P-value | Favours | $I^2$; Q test P value | AMSTAR final rating |
|---|---|---|---|---|---|---|---|---|---|---|
| **Acute rejection** | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **study design** | Prospective studies | Hu et al.[4], 2012 | HCV-related diseases | 5 | OR | 1.36[0.91 to | 2.05] | 0.14 | Equivalent outcomes | 0%; 0.67 | Moderate |
| | Retrospective studies | Hu et al.[4], 2012 | HCV-related diseases | 6 | OR | 0.58[0.32 to | 1.04] | 0.07 | Equivalent outcomes | 28%; 0.23 | Moderate |
| **sample size** | sample size ＜100 | Hu et al.[4], 2012 | HCV-related diseases | 7 | OR | 0.71[0.41 to | 1.25] | 0.24 | Equivalent outcomes | 0%; 0.82 | Moderate |
| | sample size ≥ 100 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 0.90[0.40 to | 2.04] | 0.8 | Equivalent outcomes | 74%; 0.009 | Moderate |
| **Donor age** | lower in LDLT group | | | 3 | OR | 0.55[0.11 to | 2.76] | 0.47 | Equivalent outcomes | 75%; 0.02 | Moderate |
| | equivalent | | | 4 | OR | 1.28[0.85 to | 1.93] | 0.23 | Equivalent outcomes | 0%; 0.58 | Moderate |
| **median year of follow-up period** | 2001 or earlier | Hu et al.[4], 2012 | HCV-related diseases | 5 | OR | 1.17[0.80 to | 1.73] | 0.42 | Equivalent outcomes | 0%; 0.54 | Moderate |
| | after 2001 | Hu et al.[4], 2012 | HCV-related diseases | 6 | OR | 0.66[0.30 to | 1.44] | 0.29 | Equivalent outcomes | 50%; 0.07 | Moderate |
| **Presence of HCC** | more in LDLT group | Hu et al.[4], 2012 | HCV-related diseases | 6 | OR | 0.98[0.61 to | 1.58] | 0.94 | Equivalent outcomes | 50%; 0.53 | Moderate |
| | more in DDLT group | Hu et al.[4], 2012 | HCV-related diseases | 2 | OR | 0.36[0.09 to | 1.41] | 0.14 | Equivalent outcomes | 49%; 0.16 | Moderate |
| **Ratio of LDLT/DDLT** | ＞0.5 | Hu et al.[4], 2012 | HCV-related diseases | 4 | OR | 1.26[0.83 to | 1.91] | 0.28 | Equivalent outcomes | 0%; 0.45 | Moderate |
| | ＜0.5 | Hu et al.[4], 2012 | HCV-related diseases | 7 | OR | 0.64[0.34 to | 1.22] | 0.18 | Equivalent outcomes | 39%; 0.13 | Moderate |
| **Vascular complication rates** | | | | | | | | | | | |
| **sample size** | LDLT < 100 | Tang et al.[8],2020 | NR | 3 | OR | 1.05[0.51 to | 2.16] | 0.89 | Equivalent outcomes | 30%; 0.24 | Critically low |
| | LDLT ≥ 100 | Tang et al.[8],2020 | NR | 3 | **OR** | **2.89[1.62 to** | **5.16]** | **0.0003** | **DDLT** | 26%; 0.26 | Critically low |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Biliary complication rates** | | | | | | | | | | |
| **sample size** | LDLT < 100 | Tang et al.[8],2020 | NR | 6 | **OR** | **3.71[1.58 to 8.71]** | **0.003** | **DDLT** | 82%; < 0.0001 | Critically low |
| | LDLT ≥ 100 | Tang et al.[8],2020 | NR | 8 | **OR** | **1.77[1.27 to 2.48]** | **0.0008** | **DDLT** | 72%; 0.0008 | Critically low |
| | ＜50LDLT | Wan et al.[10],2014 | NR | 3 | **OR** | **7.66[4.23 to 13.85]** | **＜0.001** | **DDLT** | 0%; 0.38 | Low |
| | ≥50LDLT | Wan et al.[10],2014 | NR | 5 | **OR** | **2.11[1.61 to 2.77]** | **＜0.001** | **DDLT** | 8%; 0.36 | Low |
| | DDLT < 100 | Tang et al.[8],2020 | NR | 5 | **OR** | **4.80[2.88 to 7.98]** | **< 0.00001** | **DDLT** | 49%; 0.10 | Critically low |
| | DDLT ≥ 100 | Tang et al.[8],2020 | NR | 9 | **OR** | **1.74[1.24 to 2.43]** | **0.001** | **DDLT** | 77%; < 0.0001 | Critically low |
| **Diagnosis of the patients** | HCC related | Tang et al.[8],2020 | NR | 2 | OR | 2.21[1.72 to 2.83] | < 0.00001 | DDLT | 50%; 0.16 | Critically low |
| | Not HCC related | Tang et al.[8],2020 | NR | 12 | OR | 2.21[1.46 to 3.34] | 0.0002 | DDLT | 79%; < 0.00001 | Critically low |

MA, meta-analysis; CI, confidence interval; RR, relative risk; OR, odds ratio; NR, not reported; LDLT, living donor liver transplantation; DDLT, deceased donor liver transplantation.

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