

Supplementary Table 1. Summary of selected literature

Article	Study design	Year	Country	Main diagnosis	Surgery classification	No. of participants	No. of transfusion	Transfusion rate
Bekki et al. [24]	RCS	2020	Japan	HCC		139	22	15.8
Cai et al. [25]	RCS	2020	China			34	1	2.9
Chen et al. [26]	RCS	2020	China	Benign		135	58	43.0
Chen et al. [27]	RCS	2020	China	HCC		1,255	347	27.6
Choi et al. [29]	RCS	2020	Korea		LS	37	0	0.0
Clark et al. [30]	RCS	2020	United Kingdom		LS	40	11	27.5
	RCS	2020	United Kingdom		OS	40	9	22.5
Cloyd et al. [31]	RCS	2020	United States			3,707	426	11.5
D'Hondt et al. [32]	RCS	2020	Belgium			235	8	3.4
Hu et al. [33]	RCS	2020	China	Benign	MIS	57	5	8.8
	RCS	2020	China	Benign	LS	57	4	7.0
	RCS	2020	China	Benign	OS	57	8	14.0
Huang et al. [34]	RCS	2020	China	HCC		3,440	306	8.9
Jia et al. [35]	RCS	2020	China	HCC		138	17	12.3
Ju et al. [36]	RCS	2020	China	Benign		110	38	34.5
Kim et al. [37]	RCS	2020	Korea	HCC	LS	141	34	24.1
	RCS	2020	Korea	HCC	OS	131	48	36.6
Lee et al. [39]	RCS	2020	Korea	HCC	MIS	286	15	5.2
Machado et al. [40]	RCS	2020	Brazil			170	18	10.6
Martel et al. [21]	RCT	2020	Canada			62	9	14.5
Saad et al. [41]	RCS	2020	Korea		LS	54	0	0.0
Shen et al. [42]	RCS	2020	China	HCC		768	40	5.2
Shin et al. [43]	RCS	2020	Korea	Benign	OS	33	8	24.2
	RCS	2020	Korea	Benign	LS	43	1	2.3
Sucandy et al. [44]	RCS	2020	United States		MIS	32	0	0.0
Tabath et al. [45]	RCS	2020	France			20	0	0.0
Tai et al. [46]	RCS	2020	Taiwan	HCC		1,469	626	42.6
Tee et al. [47]	RCS	2020	United States			15,612	2,706	17.3
Tian et al. [48]	RCS	2020	China			74	24	32.4
Wang et al. [49]	RCS	2020	China	HCC		1,904	408	21.4
Wang et al. [50]	RCS	2020	China		LS	138	23	16.7
	RCS	2020	China		OS	138	49	35.5
Yi et al. [51]	RCS	2020	China	HCC	OS	52	2	3.8
	RCS	2020	China	HCC	LS	27	0	0.0
Yu et al. [23]	RCT	2020	China			139	6	4.3
Zhang et al. [52]	RCS	2020	China	ICC	OS	9	5	55.6
	RCS	2020	China	ICC	LS	14	8	57.1
Zhao et al. [86]	RCS	2020	China		MIS	100	6	6.0
Zheng et al. [87]	RCS	2020	China	HCC	LS	495	72	14.5
Zhou et al. [53]	RCS	2020	China	Benign		233	15	6.4
Machado et al. [70]	RCS	2021	Brazil		MIS	50	2	4.0
Al Khaldi et al. [54]	RCS	2021	Canada			683	114	16.7
Aoki et al. [55]	RCS	2021	Japan	HCC	LS	4,112	292	7.1
Bednarsch et al. [56]	RCS	2021	Germany	HCC		136	22	16.2
Boillot et al. [57]	RCS	2021	France	Benign		29	11	37.9
Fagenson et al. [58]	RCS	2021	United States			2,048	48	2.3
Galun et al. [59]	RCS	2021	SERBIA	HCC		229	21	9.2
Gao et al. [22]	RCT	2021	China		LS	80	10	12.5
Goh et al. [60]	RCS	2021	Singapore		MIS	536	81	15.1
Hobeika et al. [61]	RCS	2021	France	ICC	OS	421	72	17.1
	RCS	2021	France	ICC	LS	127	13	10.2
Hue et al. [62]	RCS	2021	United States		OS	6,935	1,322	19.1
	RCS	2021	United States		MIS	2,237	229	10.2
Inoue et al. [63]	RCS	2021	Japan	HCC		272	24	8.8

Supplementary Table 1. Continued 1

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Kabir et al. [101]	RCS	2021	Singapore	HCC	LS	461	76	16.5
Ke et al. [64]	RCS	2021	China	ICC		380	74	19.5
Kim et al. [65]	RCS	2021	Korea	HCC		130	9	6.9
Li et al. [66]	RCS	2021	China	ICC		184	22	12.0
Li et al. [67]	RCS	2021	China			556	119	21.4
Lopez-Lopez et al. [68]	RCS	2021	Spain	HCC	LS	44	3	6.8
Lv et al. [69]	RCS	2021	China	HCC	LS	182	40	22.0
Mahamid et al. [71]	RCS	2021	United States		OS	93	42	45.2
Matsumoto et al. [72]	RCS	2021	Japan	HCC		90	19	21.1
Matsuo et al. [73]	RCS	2021	Japan		OS	172	32	18.6
	RCS	2021	Japan		LS	135	10	7.4
Ninh et al. [74]	RCS	2021	Vietnam	HCC		72	10	13.9
Peng et al. [75]	RCS	2021	China	HCC		269	63	23.4
Reese et al. [76]	RCS	2021	Germany	ICC		115	29	25.2
Ryu et al. [77]	RCS	2021	Japan	HCC		81	4	4.9
Shehta et al. [78]	RCS	2021	Egypt	HCC		268	133	49.6
Shin et al. [79]	RCS	2021	Korea	HCC		312	19	6.1
Sim et al. [80]	RCS	2021	Korea	HCC		1,065	63	5.9
Takata et al. [81]	RCS	2021	Japan	HCC		65	10	15.4
Vandermeulen et al. [82]	RCS	2021	France		LS	25	0	0.0
Villagomez et al. [83]	RCS	2021	United States			8,237	1,306	15.9
Wang et al. [84]	RCS	2021	China	HCC		2,469	525	21.3
Wang et al. [85]	RCS	2021	China	HCC		325	31	9.5
Zhou et al. [88]	RCS	2021	China	HCC	MIS	85	10	11.8
Baumgartner et al. [89]	RCS	2022	Sweden			799	251	31.4
Cai et al. [90]	RCS	2022	China		LS	27	6	22.2
Cai et al. [90]	RCS	2022	China		MIS	25	0	0.0
Cao et al. [91]	RCS	2022	China			582	145	24.9
Chen et al. [28]	RCS	2022	Taiwan		LS	436	25	5.7
Cipriani et al. [92]	RCS	2022	Italy		MIS	403	5	1.2
	RCS	2022	Italy		LS	936	13	1.4
Dong et al. [93]	RCS	2022	China	Benign		373	131	35.1
Durán et al. [94]	RCS	2022	Spain		MIS	63	2	3.2
Fok et al. [95]	RCS	2022	China			957	214	22.4
Hawthornth et al. [96]	RCS	2022	United States		MIS	20	3	15.0
Herman et al. [97]	RCS	2022	Brazil	HCC		227	43	18.9
Imai et al. [98]	RCS	2022	Japan		LS	203	21	10.3
Jo et al. [99]	RCS	2022	Korea		OS	229	18	7.9
	RCS	2022	Korea		LS	866	9	1.0
Jo et al. [100]	RCS	2022	Korea	Benign	LS	138	28	20.3
Kaibori et al. [102]	RCS	2022	Japan	HCC	OS	2,476	622	25.1
	RCS	2022	Japan	HCC	LS	426	48	11.3
Lei et al. [104]	RCS	2022	China	HCC		880	263	29.9
Loncar et al. [105]	RCS	2022	France			399	41	10.3
Luo et al. [106]	RCS	2022	China	HCC	OS	82	28	34.1
Miyata et al. [107]	RCS	2022	Japan	HCC		500	69	13.8
Nakada et al. [108]	RCS	2022	Japan		LS	106	19	17.9
Nanashima et al. [109]	RCS	2022	Japan	HCC		24	9	37.5
Notake et al. [110]	RCS	2022	Japan		LS	13	0	0.0
Osei-Bordom et al. [111]	RCS	2022	United Kingdom			1,826	190	10.4
Rahimli et al. [112]	RCS	2022	Germany		MIS	40	9	22.5
Schmelzle et al. [113]	RCS	2022	Germany		MIS	129	6	4.7
	RCS	2022	Germany		LS	471	35	7.4
Tan et al. [114]	RCS	2022	China	Benign		68	15	22.1

Supplementary Table 1. Continued 2

Article	Study design	Year	Country	Main diagnosis	Surgery classification	No. of participants	No. of transfusion	Transfusion rate
Tanemura et al. [115]	RCS	2022	Japan		LS	87	12	13.8
Vining et al. [116]	RCS	2022	United States		MIS	668	81	12.1
	RCS	2022	United States		OS	15,162	2,607	17.2
	RCS	2022	United States		LS	5,512	433	7.9
Wang et al. [117]	RCS	2022	China	ICC	OS	78	19	24.4
	RCS	2022	China	ICC	LS	29	3	10.3
Wu et al. [118]	RCS	2022	China	Benign		77	12	15.6
Xu et al. [119]	RCS	2022	China	HCC		455	193	42.4
Xu et al. [120]	RCS	2022	China			1,633	689	42.2
Yang et al. [121]	RCS	2022	China	HCC		155	76	49.0
Yang et al. [122]	RCS	2022	China	HCC	LS	495	72	14.5
Yang et al. [123]	RCS	2022	China		LS	198	1	0.5
Zhang et al. [124]	RCS	2022	China			51	0	0.0

RCS, retrospective cohort study; HCC, hepatocellular carcinoma; ICC, intrahepatic cholangiocarcinoma; MIS, minimal invasive surgery; LS, laparoscopic surgery; OS, open surgery; RCT, randomized controlled trial.