

Literature search strategy

Pubmed: n=724

((((((((((((((("predict"[All Fields] OR "predictabilities"[All Fields]) OR "predictability"[All Fields]) OR "predictable"[All Fields]) OR "predictably"[All Fields]) OR "predicted"[All Fields]) OR "predicting"[All Fields]) OR "prediction"[All Fields]) OR "predictions"[All Fields]) OR "predictive"[All Fields]) OR "predictively"[All Fields]) OR "predictiveness"[All Fields]) OR "predictives"[All Fields]) OR "predictivities"[All Fields]) OR "predictivity"[All Fields]) OR "predicts"[All Fields]) OR (("prognosis"[MeSH Terms] OR "prognosis"[All Fields]) OR "prognoses"[All Fields])) OR (((("epidemiologies"[All Fields] OR "epidemiology"[MeSH Subheading]) OR "epidemiology"[All Fields]) OR "epidemiology"[MeSH Terms]) OR "epidemiology s"[All Fields])) OR (("risk factors"[MeSH Terms] OR ("risk"[All Fields] AND "factors"[All Fields])) OR "risk factors"[All Fields])) AND (((("paediatrics"[All Fields] OR "pediatrics"[MeSH Terms]) OR "pediatrics"[All Fields]) OR "paediatric"[All Fields]) OR "pediatric"[All Fields]) AND (((("liver failure, acute"[MeSH Terms] OR ("liver"[All Fields] AND "failure"[All Fields]) AND "acute"[All Fields])) OR "acute liver failure"[All Fields]) OR (("acute"[All Fields] AND "liver"[All Fields]) AND "failure"[All Fields])))

Embase and Medline: n=555

('prediction'/exp OR prediction OR 'prognosis'/exp OR prognosis OR 'epidemiology'/exp OR epidemiology OR 'risk factors'/exp OR 'risk factors' OR (('risk'/exp OR risk) AND factors)) AND ('pediatric acute liver failure'/exp OR 'pediatric acute liver failure' OR (('pediatric'/exp OR pediatric) AND acute AND ('liver'/exp OR liver) AND ('failure'/exp OR failure))) AND ([infant]/lim OR [child]/lim OR [preschool]/lim OR [school]/lim OR [adolescent]/lim) AND [humans]/lim AND [english]/lim NOT ([review]/lim OR [conference abstract]/lim OR [conference paper]/lim OR [letter]/lim OR [note]/lim OR [editorial]/lim OR [short survey]/lim OR [erratum]/lim OR 'case report'/de) NOT [animals]/lim

Cochrane: n=186

((prediction) OR (prognosis) OR (epidemiology) OR (risk factors)) AND (pediatric acute liver failure)) in All Text

Used (adapted) QUIPS list for scoring methodological quality of prognosis studies

Criteria	Score		
	+	+/-	-
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1. Study participation			
•Target population	3	1.5	0
•Sampling frame	3	1.5	0
•Inclusion criteria	3	1.5	0
•Baseline study population	3	1.5	0
•Adequate study participation	3	1.5	0
2. Study attrition			
•Proportion of the population available for analysis	5	2.5	0
•Outcome and prognostic factor information on those lost to follow up	5	2.5	0
•Reasons and potential impact of subjects lost to follow up	5	2.5	0
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3. Measurement of prognostic factors			
•Definition of prognostic factor	5	2.5	0
•Valid and reliable measurement of prognostic factor	5	2.5	0
•Method and setting of prognostic factor measurement	5	2.5	0
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4. Measurement of outcomes			
•Definition of outcome	5	2.5	0
•Valid and reliable measurement of outcome	5	2.5	0
•Method and setting of outcome measurement	5	2.5	0
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5. Statistical analysis and presentation			
•Presentation of analytical strategy	5	2.5	0
•Model development strategy	5	2.5	0
•Reporting of results	5	2.5	0

Summary of etiology for meta-analyze

			Indeterminat e	Metaboli c	Autoimmun e	Drug s	Infectiv e
Alam 2017	SR	N Sampl e	1 52	3		10	31
	Death	N Sampl e	13 42	8		2	11
	Poor outcom e	N Sampl e	15 57	11		2	19
Ozcay 2016	SR	N Sampl e	6 37	3	1	4	14
	Death	N Sampl e	11 22	2	0	1	6
	Poor outcom e	N Sampl e	24 54	8	0	2	16
Di 2017	SR	N Sampl e	8 25	6	4	6	0
	Death	N Sampl e	3 4	0	1	0	0
	Poor outcom e	N Sampl e	15 30	3	6	0	1
Rajanayaga m 2013	SR	N Sampl e	7 25	3	3	5	5
	Death	N Sampl e	2 12	4	0	1	2
	Poor outcom e	N Sampl e	10 29	11	0	1	3
Aydoğdu 2003	SR	N Sampl e	2 6		0		3
	Death	N	13		1		9

		Sample	21				
	SR	N	11				
		Sample	59				
Ciocca 2008	Death	N	25				
		Sample	61				
	Poor outcome	N	57				
		Sample	151				
	SR	N		7	2	9	14
		Sample	32				
Lee 2005	Death	N		10	1	3	11
		Sample	25				
	Poor outcome	N		15	1	10	39
		Sample	65				
	SR	N	73	16	12	52	10
		Sample	186				
Squires 2006	Death	N	18	8	3	6	5
		Sample	49				
	poor outcome	N	96	20	10	13	10
		Sample	162				
	SR	N	1	1	1	2	3
		Sample	9				
Nuñez-Ramos 2018	Death	N	2	0	0	0	1
		Sample	5				
	Poor outcome	N	4	1	2	0	1
		Sample	11				

Categories of prognostic factors

Bio-markers	ALT, AST, Ammonia, Albumin, Bilirubin, DB, PT, APTT, PH, INR, PTA, Factor V, Factor VII, Platelets, WBC, Lactate, Serum phosphorus, AFP, Creatinine, LDH, Total proteins, sIL2R α , Gc-globulin, PABA, ICG-PDR
General markers	Idiopathic etiology, J-E interval, Cerebral Edema, MODS, Gastrointestinal bleeding, HE, EEG
Scoring systems	KCC, PELD-MELD, LIU, aLIU, PRISM, KCC, Nazer score, DBN, Peds-HAV model, JIHBDSG, ANN
Treatments	Plasma exchange, Mechanical Ventilator, Renal replacement, Vasopressor

Figure. Funnel plot and forest plot of poor outcome

