Supplementary Appendix 1. Virtual International Stroke Trial Archive (VISTA) - Cognition Steering Committee

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Supplementary Methods 1. Search syntax used across electronic databases

1. Montreal Cognitive Assessment.ti,ab,kf
2. Montreal Cognitive*.ti,ab,kf
3. MoCA.ti,ab,kf
4. Mini adj3 Montreal Cognitive.ti,ab,kf
5. Mini adj3 MoCA.ti,ab,kf
6. Mini-MoCA.ti,ab,kf
7. miniMoCA.ti,ab,kf
8. Short adj3 Montreal Cognitive.ti,ab,kf
9. Short adj3 MoCA.ti,ab,kf
10. Montreal Cognitive adj3 5-minute protocol.ti,ab,kf
11. MoCA adj3 5-minute protocol.ti,ab,kf
12. 1 OR 2 OR 3 OR 4 or 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11
13. Short* form*.ti,ab,kf
14. Abbreviate*.ti,ab,kf
15. item reduction*.ti,ab,kf
16. minimum dataset. ti,ab,kf
17. Rasch*ti,ab,kf
18. Principal component analys*.ti,ab,kf
19. 13 OR 14 OR 15 OR 16 OR 17 OR 18
20. 12 AND 19

Supplementary Table 1. Characteristics of studies included in systematic review.

Study ID	Subjects (n)	Target Condition	Index Test	Reference Standard	Cut-off	Sensitivity	Specificity
			CI in Stroke				
Bocti 2013	386	CI in TIA/stroke	New Short MoCA	MoCA	<7/10	91%	83%
			NINDS-CSN 5 min protocol		<10/12	87%	74%
Campbell 2016	72	CI in Stroke	Mini-MoCA	Cognistat	<7/10	93%	92%
Davies 2011 (CA)	102	CI in stroke prevention clinic	Mini-MoCA	MoCA	not reported	not reported	not reported
Dong 2015 (CA)	327	Post Stroke VCI	5 min MoCA	Formal neuropsychological evaluation	<13/20	70%	87%
Lim 2017	308	Post-stroke dementia	NINDS-CSN 5 min protocol	NINDS-CSN 60 min protocol	<7/12	82%	67%
Lin 2016	136	Vascular CI	NINDS-CSN 5 min protocol	Clinical diagnosis	<16/20	73%	64%
Mai 2013	102	CI in stroke population	Mini-MoCA	MoCA	<7/10	99%	78%

Study ID	Subjects (n)	Target Condition	Index Test	Reference Standard	Cut-off	Sensitivity	Specificity
Pendlebury 2013	68	Multi-domain MCI (in TIA/Stroke)	T-MoCA	MoCA and neuropsychological battery	<18/22	100%	52%
			T-MoCA Short (NINDS-CSN)		<10/12	83%	48%
		Any MCI (single + multi-domain)	T-MoCA		<19/22	89%	46%
			T-MoCA Short (NINDS-CSN)		<10/12	96%	39%
Wong 2015	1013	Dementia in stroke/TIA	MoCA 5 min protocol	CDR	<15/30	84% [a]	73% [a]
CI in older Adults - MCI, dementia							
Horton 2015	Derivation Group =317	HC vs AD+MCI	SF-MoCA	MDT Consensus and Neurodiagnostic Evaluation		85% [b]	75% [b]
	Validation Group = 91					77% [b]	72% [b]
Bocti 2012 (CA)	341	MCI vs HC	Four item Mini-MoCA	Complete MDT Workup inc MoCA	<9/11	84%	85%
Cecato 2016	97	AD vs MCI	Reduced MoCA	DSM IV	<8.5/18	85%	87%
	83	MCI vs HC	Reduced MoCA	DSM IV	<13.5/18	82%	72%

Study ID	Subjects (n)	Target Condition	Index Test	Reference Standard	Cut-off	Sensitivity	Specificity
Larner 2017	cohort 1: 150, cohort 2: 260	Dementia vs MCI	S-MoCA	DSM IV	<12/16	cohort 1: 94%, cohort 2: 98%	cohort 1: 25%, cohort 2: 7%
		MCI vs Subjective memory complaints				cohort 1: 75%, cohort 2: 93%	cohort 1: 66%, cohort 2: 60%
Panenkova 2016	540	C.I	Abbreviated MoCA	MoCA	<4/8	89%	64%
Roalf 2017	1850	full sample (AD, MCI, PD & PDD) vs Healthy control	s-MoCA	DSM IV	<12/16	62%	86%
		MCI vs HC			<12/16	84%	86%
		AD vs HC			<11/16	96%	93%
Wittich 2010	277	MCI , AD	MoCA-B	Neuropsychological evaluation	Absolute - <18/22	44% , 87%	98%
					Relative - <19/22	63%, 94%	98%
Xu 2016	405	CIND, Dementia	NINDS-CSN 5 min protocol	DSM IV	Not reported	Not reported	Not reported
CI in other disease groups							

Study ID	Subjects (n)	Target Condition	Index Test	Reference Standard	Cut-off	Sensitivity	Specificity
Cameron 2016	221	CI in HF	NINDS-CSN 5 min protocol	MoCA	<10/12	89%	71%
Dong 2015	101	CI in PD	NINDS-CSN 5 min protocol	CDR	<9/12	77%	78%
Freitas 2018	59	CI in MS	EM-MoCA	Formal neuropsychological evaluation	<17/19	94%	87%
Kaur 2013	80	CI in MS	NINDS-CSN 5 min protocol	Not reported	<10.5/12	97%	90%

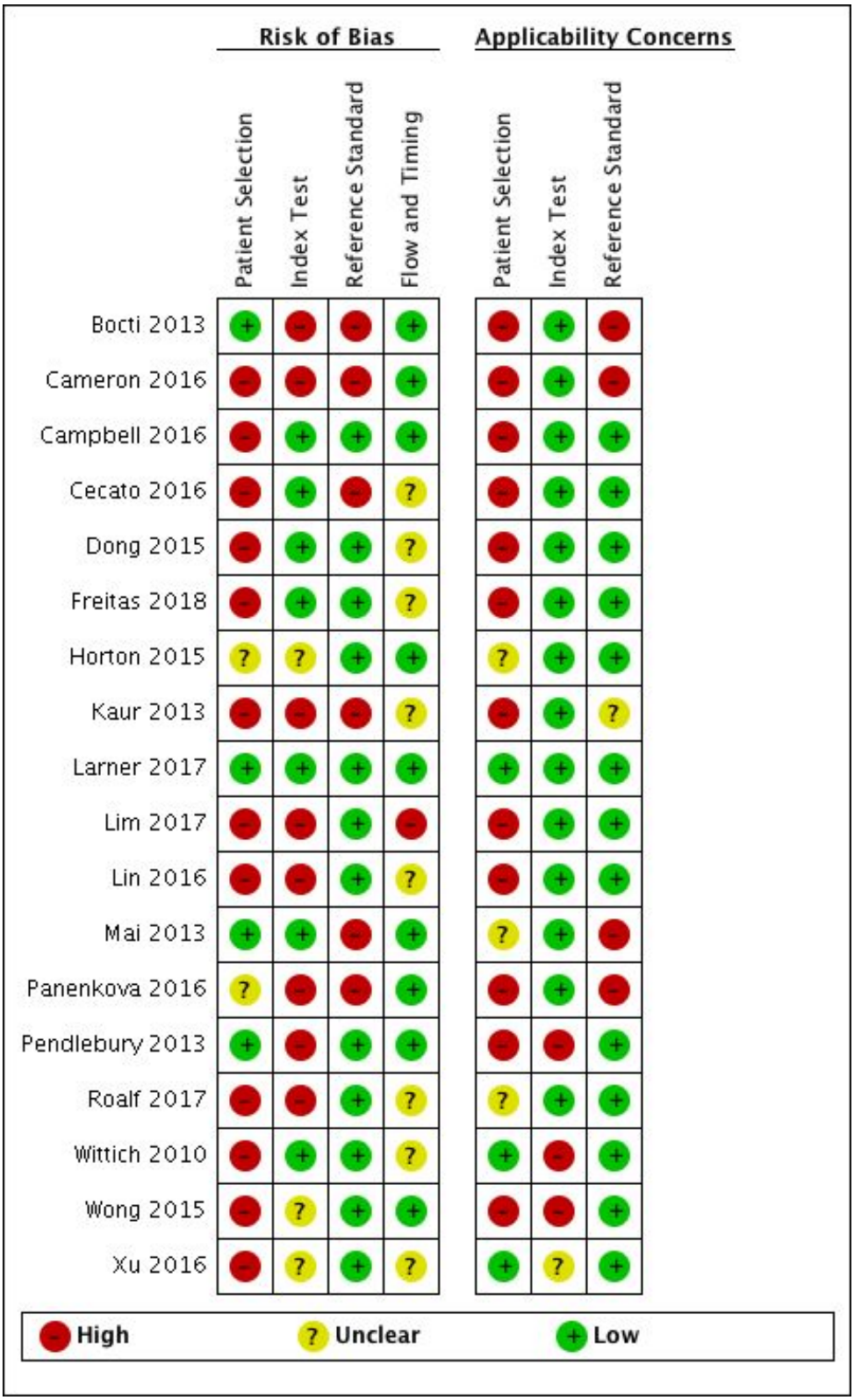
[a]Data obtained through contacting authors

[b]Data obtained from ROC curve

CA = conference abstract; CDR = Clinical Dementia Rating; CI = Cognitive Impairment; DSM = Diagnostic and Statistical Manual; HC = Healthy Control; MDT = Multidisciplinary Team Assessment; NPB = Neuropsychological battery; NINDS-CSN = National Institute of Neurological Disorders and Stroke and the Canadian Stroke Network

Where multiple cut-offs were presented, we chose the optimal cut-off as specified by the author. Where various reference standards were described, we describe the comparator closest to clinical diagnosis dementia.

Supplementary Table 2. Risk of bias and applicability concerns for papers describing short form Montreal Cognitive Assessment using the Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) tool



Green = low risk, amber = moderate/uncertain risk; red = high risk

Supplementary Table 3. Quality of reporting for papers describing short form Montreal Cognitive Assessment using the STARDdem tool

	STARDdem	Bocti 2013	Cameron 2016	Campbell 2015	Cecato 2016	Dong 2015 (PD)	Freitas 2018	Horton 2015	Kaur 2013	Larner 2017	Lim 2017	Lin 2016	Mai 2013	Panenkova 2016	Pendlebury 2013	Roalf 2016	Wittich 2010	Wong 2015	Xu 2016
Title/Abstract	1	y	y	y	y	y	y	y	y	y	y	y	y	n	y	y	y	y	y
Introduction	2	y	y	y	y	y	y	y	y	y	y	y	y	n	y	y	y	y	y
Methods	3	y	y	y	y	n	y	y	n	y	y	y	y	y	y	y	y	y	y
	4	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
	5	y	n	y	n	y	y	n	n	y	y	n	y	y	y	n	n	y	y
	6	y	y	y	y	y	y	y	n	y	y	y	y	y	y	y	y	y	y
	7	y	y	y	y	y	y	y	n	y	y	y	n	y	y	y	y	y	y
	8	y	n	y	y	y	y	y	n	y	y	y	y	y	y	y	y	y	y
	9	y	y	y	y	y	y	y	n	y	n	y	y	n	n	y	y	y	y
	10	n	y	y	y	y	y	n	n	n	n	y	n	n	n	n	n	n	y
	11	n	y	n	y	y	y	n	n	n	n	y	y	n	n	y	n	n	n
Stats	12	n	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	
	13	n	n	n	n	n	n	y	n	n	n	n	n	n	n	y	n	y	n
Results	14	y	n	y	y	n	y	y	n	y	n	n	n	n	y	y	n	y	n
	15	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
	16	y	n	n	y	y	n	n	n	y	y	n	y	y	n	n	n	y	n
	17	y	y	y	n	n	n	n	n	y	n	n	y	y	y	n	n	y	n
	18	y	y	y	y	y	y	y	n	y	y	y	y	y	y	y	y	y	y
	19	y	y	y	y	y	y	y	n	y	n	n	y	n	y	y	y	y	n
	20	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Estimates	21	n	n	n	y	y	y	y	n	y	n	y	n	y	y	y	n	y	y
	22	y	y	n	n	n	n	n	n	y	y	y	y	n	n	n	n	y	n
	23	n	y	n	y	n	y	y	n	n	n	y	y	n	y	y	n	y	y
	24	n	y	n	n	n	n	y	n	n	n	n	n	n	n	y	n	y	n
Discussion	25	n	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y

Y=yes (reported), N=no (not reported)

Supplementary Table 4. Correlation of each item with total Montreal Cognitive Assessment (MoCA) and internal consistency (Cronbach's alpha) if that item removed (data from independent stroke and memory clinic data-sets)

	Stroke Correlation with Total MoCA	Cronbach Coefficient Alpha if Variable was Deleted	**Memory Clinic** Correlation with Total MoCA	Cronbach Coefficient Alpha if Variable was Deleted
Trails	0.60	0.85	0.54	0.80
Cube	0.51	0.86	0.47	0.81
Clock	0.71	0.85	0.53	0.80
Naming	0.58	0.85	0.39	0.81
Digits	0.55	0.87	0.45	0.81
Letters	0.55	0.86	0.36	0.82
Subtraction	0.64	0.85	0.54	0.80
Repetition	0.31	0.87	0.45	0.81
Fluency	0.55	0.86	0.40	0.81
Abstraction	0.42	0.86	0.49	0.81
Recall	0.57	0.86	0.46	0.81
Orientation	0.60	0.85	0.55	0.80

Supplementary Table 5. Factor pattern for all items of Montreal Cognitive Assessment (MoCA)

	Stroke	Memory Clinic
TRAILS	0.649	0.597
CUBE	0.556	0.527
CLOCK	0.762	0.600
NAMING	0.628	0.434
DIGITS	0.590	0.488
LETTERS	0.587	0.400
SUBTRACTION	0.697	0.609
REPEAT	0.331	0.501
FLUENCY	0.594	0.441
ABSTRACTION	0.446	0.535
DELAYED RECALL	0.607	0.525
ORIENTATION	0.653	0.623

Analyses uses standardized regression coefficients