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**Qasem, M, Utomi, V, George, KP, Somauroo, J, Zaidi, A, Forsythe, L, Bhattacharrya, S, Lloyd, G, Rana, B, Ring, L, Robinson, S, Senior, R, Sheikh, N, Sitali, M, Sandoval, J, Steeds, R, Stout, M, Willis, J and Oxborough, D**

**A meta-analysis for echocardiographic assessment of right ventricular structure and function in ARVC.**

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### Article

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Table 1: Characteristics of included studies

Study	Location	Code*	Sample size	Ages	Task Force Criteria	RVOT <sub>1</sub> (mm)	RVD <sub>area</sub> (cm <sup>2</sup> )	RVFAC (%)	TAPSE (mm)	RVS' (cm/s)	RVE' (cm/s)	RV Strain (%)
<b>Lindstrom et al (2001)</b>	Sweden	1	25 (11 M/14 F)	38	1994	NR	NR	NR	25.9±2.8	13.7±2	14.6±3.4	NR
		2	15 (10 M/5 F)	39±12.6					22.1±5.5	11.9±3	10.5±3.1	
<b>Yoerger et al (2005)</b>	USA	1	29 (17 M/12 F)	37.1±14.2	1994	31.1±4.7	17.9±3.5	41±7	NR	NR	NR	NR
		2	29 (17 M/12 F)	37±14.2		38.9±4.7	25.2±7.7	27±16				
<b>Prakasa et al (2007)</b>	USA	1	35 (23 M/13 F)	32±8	1994	28±4	NR	40±9	18.7±3.5	9±1.6	9.4±2	-28±11
		2	30 (19 M/11 F)	38±12		34±8		35±12	13.7±5.8	6.4±2.2	6.7±2.7	-10±6
<b>Wang et al (2007)</b>	USA	1	43 (27 M/16 F)	32±11	1994	NR	NR	54±7	19.5±3.9	10.2±1.5	NR	-33.3±10.4
		2	10 (6 M/4 F)	34±12				43±8	16.8±3.4	7.9±1.5		-17.2±10.1
<b>Bauce et al (2008)</b>	Italy	1	40 (26 M/14 F)	28±12	1994	29.6±5	19.3±3.7	46±6	NR	NR	NR	NR
		2	40 (28 M/12 F)	28±8		35.6±6.8	25.7±3	40±8				
<b>Tops et al (2009)</b>	USA	1	25 (18 M/7 F)	32±6	1994	26±2	17±3	44±7	NR	9.9±1.2	NR	-25±9
		2	52 (22 M/30 F)	41±12		29±4	20±5	32±8		7.4±2.1		-19±7

			M/30 F)									
<b>Teske et al (2009)</b>	Netherland	1	34 (19 M/15 F)	35±9	1994	NR	NR	NR	22.5±2.6	11.2±1.9	13.7±2.4	-29.6±3
		2	34 (20 M/14 F)	45±14					17.2±4	7.4±1.9	8.2±3.6	-17.8±6.4
<b>Lacoviello et al (2011)</b>	Italy	1	25 (21 M/4 F)	45±10	1994	NR	NR	NR	26±3.2	16.5±4.2	46±6	NR
		2	15 (14 M/1 F)	44±15					30.9±2.9	19.2±3.8	42±7	
<b>Aneq et al (2012)</b>	Sweden	1	22 (M)	36	1994	NR	NR	NR	25.3±2.9	11.2±1.9	NR	NR
		2	17 (M)	49					19.1±5	8.2±2.5		
<b>vitarelli et al (2013)</b>	Italy	1	19 (12 M/7 F)	42.2±13.2	1994	NR	NR	50±4	23.1±2.3	12.9±1.4	NR	-28.6±2.8
		2	19 (12 M/7 F)	41.9±13.2				43±4	18.6±1.9	9.8±1.8		-20.4±4.7

\*Sub group within study 1 = control, 2 = ARVC

RV proximal outflow (RVOT<sub>1</sub>), RV end-diastolic area (RVD<sub>area</sub>), RV fractional area change (RVFAC), Tricuspid Annular Plane Systolic excursion (TAPSE), RV peak systolic myocardial velocity (RVS'), RV peak early diastolic myocardial velocity (RVE') and RV global longitudinal strain (RV ε), Not Reported (NR)

Table 2: Baseline characteristics

Study	Syncope	Palpitations	Family History	Anti-arrhythmic	Beta-blockers	Defibrillator	RV systolic Pressure (mm Hg)	Ventricular Tachycardia	Ventricular arrhythmias	Other
Lindstrom et al (2001)	10			3	11	2	NR	9	NR	4
Prakasa et al (2007)	11	16	NR	NR	20	21	30±18	NR	NR	NR
Wang et al (2007)	3	9	4	3	5	1	1*	NR	NR	NR
Bauce et al (2008)	NR	NR	17	NR	NR	NR	NR	7	28	NR
Tops et al (2009)	13	18	NR	NR	NR	45	29±6	14	NR	9
Teske et al (2009)	3		NR	2	17	12	NR	22		NR

<b>Lacoviello et al (2011)</b>	NR	NR	NR	NR	14	11	NR	NR	NR	NR
<b>Aneq et al (2012)</b>	NR	NR	NR	13	NR	9	NR	NR	NR	NR
<b>vitarelli et al (2013)</b>	NR	NR	NR	Drug therapy was not discontinued	NR	NR	NR	NR	NR	NR
<b>Yoerger et al (2005)</b>	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

\*Mean RV systolic pressure was within normal range in both groups with only a single patient with ARVD demonstrating significant tricuspid regurgitation

Not Reported (NR)

Table 3: Data are pooled mean estimates (95% CI), [number of studies, number of participants]

Parameters	ARVC	Control	Cut-Off	Difference in means (95% CI)	Heterogeneity test		
					Heterogeneity	I-squared (%)	p value
<b>RVOT<sub>1</sub> (mm)</b>	34 (30 to 38) [n=5; 166]	28 (26 to 30) [n=5; 155]*	31	5.4 (3.6 to 7.1)	3	66%	0.02
<b>RVD<sub>area</sub> (cm<sup>2</sup>)</b>	23 (19 to 26) [n=4; 136]	18 (17 to 19) [n=4; 119]*	20	4.8 (2.6 to 7.1)	3.7	75%	0.007
<b>RVFAC (%)</b>	37.6 (33.4 to 41.9) [n=7; 195]	45.9 (42.4 to 49.5) [n=7; 217]*	42	- 8.1 (-10.6 to -5.6)	0.01	64%	0.012
<b>TAPSE (mm)</b>	18 (16 to 20) [n=6; 125]	23 (20 to 25) [n=6; 179]*	20	-4.7 (-5.5 to -3.9)	0	51%	0.444
<b>RVS' (cm/s)</b>	9 (8 to 10) [n=8; 192]	12 (10 to 13) [n=8; 229]*	10	- 2.7 (-3.2 to -2.2)	0.2	37%	0.135
<b>RVE' (cm/s)</b>	9 (7 to 11) [n=4; 94]	13 (10 to 16) [n=4; 120]*	10	-3.8 (-5.2 to -2.4)	1.42	69%	0.021
<b>RV strain (%)</b>	-17 (-21 to -13) [n=5; 154]	-29 (-31 to -27) [n=5; 157]*	-21	11.5 (7.7 to 15.3)	15	83%	0

\*p<0.001 versus ARVC

RV proximal outflow (RVOT<sub>1</sub>), RV end-diastolic area (RVD<sub>area</sub>), RV fractional area change (RVFAC), Tricuspid Annular Plane Systolic excursion (TAPSE), RV peak systolic myocardial velocity (RVS'), RV peak early diastolic myocardial velocity (RVE') and RV global longitudinal strain (RV ε)

Heterogeneity Evaluation: 1) I-squared = 25 % Low heterogeneity, 50% Moderate heterogeneity, 75% 50% High heterogeneity, 2)  $P < 0.1$  for statistical significance, 3) Tau Squared  $> 1$ , statistical significant for heterogeneity.