

# Supplementary Materials: The Association of Salivary Conductivity with Cardiomegaly in Hemodialysis Patients

An-Ting Lee <sup>1,†</sup>, Yen-Pei Lu <sup>2,†</sup>, Chun-Hao Chen <sup>3</sup>, Chia-Hao Chang <sup>4</sup>, Yuan-Hsiung Tsai <sup>5</sup>, Chun-Wu Tung <sup>6,7,\*</sup> and Jen-Tsung Yang <sup>8,9,\*</sup>

## 1. Supplementary Information

**Table S1.** Values of all three measurement of salivary conductivity.

Cardiomegaly Group						
ID	Dataset 1	Dataset 2	Dataset 3	Mean	SD	CV%
1	5620.94	5718.87	5618.87	5652.89	57.147	1.67
4	5125.73	5173.655	5205.605	5168.33	40.203	0.78
5	7203.35	7303.35	7292.7	7266.467	54.919	0.76
7	5527.2	5367.2	5533.08	5475.827	94.119	1.72
8	4183.24	4303.05	4216.9	4234.397	61.792	1.46
14	9606.565	9758.32	9792.7	9719.195	99.044	1.02
19	12,953.21	13,091.13	12,911.13	12,985.16	94.156	0.73
23	7002.73	6962.795	6970.78	6978.768	21.132	0.3
26	5581.005	5672.955	5552.955	5602.305	62.772	1.12
33	6164.07	6141.1	6148.095	6151.088	11.774	0.19
34	4886.115	4926.05	4934.04	4915.402	25.676	0.52
40	5756.725	5788.67	5828.61	5791.335	36.017	0.62
42	7106.565	7058.64	7226.37	7130.525	86.394	1.21
43	7018.705	7104.68	6964.68	7029.355	70.605	1
49	6579.405	6571.42	6587.395	6579.407	7.988	0.12
51	6716.9	6771.1	6827.01	6771.67	55.057	0.81
52	4686.435	4782.28	4798.255	4755.657	60.478	1.27
60	5551.13	5469.185	5451.13	5490.482	53.293	0.97
62	8743.945	8735.955	8704.005	8727.968	21.134	0.24
63	13,256.73	13,208.8	13,192.83	13,219.45	33.255	0.25
69	6787.075	6842.985	6835	6821.687	30.239	0.44
72	9926.05	9958	9973.975	9952.675	24.402	0.25
73	10636.92	10764.71	10844.6	10748.74	104.757	0.97
74	5740.75	5868.545	5908.48	5839.258	87.616	1.5
77	6259.92	6291.865	6267.905	6273.23	16.625	0.27
78	4918.065	4951.5	4965.99	4945.185	24.579	0.5
83	10,748.74	11,052.25	11,172.06	10,991.02	218.202	1.99
90	6723.175	6978.765	7106.565	6936.168	195.212	2.81
95	6291.865	-	-	6291.865	-	-
100	4334.995	4342.985	4350.97	4342.983	7.988	0.18
101	7889.31	7947.2	7953.21	7929.907	35.286	0.44
104	4247.14	4446.82	4470.78	4388.247	122.788	2.8
109	4558.64	4622.535	4674.6	4618.592	58.08	1.26
110	5820.62	5856.42	5896.64	5857.893	38.031	0.65
113	9087.395	9319.025	9390.91	9265.777	158.609	1.71
114	6188.035	6204.005	6259.92	6217.32	37.747	0.61
115	8256.725	8444.3	8496.34	8399.122	126.034	1.5
116	5876.53	5892.505	5908.48	5892.505	15.975	0.27

120	8999.535	8991.545	8967.585	8986.222	16.627	0.19
123	8232.76	8168.865	6819.84	7740.488	797.945	10.31
124	4630.525	4638.51	4654.485	4641.173	12.2	0.26
129	7266.305	7282.28	7253.35	7267.312	14.491	0.2
Mean	6968.85	7043.29	7022.65	6999.71		
SD	2215.28	2258.76	2247.73	2221.09		
CV%	31.79	32.07	32.01	31.73117		

## Non-Cardiomegaly Group

2	5944.3	5972.38	5988.35	5968.343	22.301	0.37
3	12,208.51	12,122.54	12,068.51	12,133.19	70.605	0.58
6	5289.75	5397.3	5407.85	5364.967	65.353	1.22
9	4662.475	4702.41	4646.5	4670.462	28.798	0.62
10	8144.9	8184.84	8240.75	8190.163	48.146	0.59
11	7218.385	7234.36	7253.35	7235.365	17.504	0.24
12	8871.74	8943.625	9015.51	8943.625	71.885	0.8
13	12,937.24	13,088.99	13,160.88	13,062.37	114.172	0.87
15	14590.59	14,646.5	14,678.45	14,638.51	44.471	0.3
16	6563.43	6507.395	6667.395	6579.407	81.188	1.23
17	8983.56	9047.46	9059.45	9030.157	40.797	0.45
18	8073.015	8128.925	8152.89	8118.277	40.988	0.5
20	7458	7689.63	7729.565	7625.732	146.626	1.92
21	4406.88	4324.935	4424.935	4385.583	53.293	1.22
22	10179.5	10,157.68	10,173.66	10,170.28	11.296	0.11
24	12,194.42	12,354.17	12,418.07	12,322.22	115.197	0.93
25	12,098.58	12,122.54	12,074.62	12,098.58	23.96	0.2
27	7114.55	7154.485	7174.6	7147.878	30.565	0.43
28	5948.415	6251.93	6435.635	6211.993	246.053	3.96
29	8783.88	8863.75	8855.765	8834.465	43.989	0.5
30	9382.92	9526.69	9590.59	9500.067	106.364	1.12
31	6563.43	6507.52	6467.585	6512.845	48.144	0.74
32	9177.55	9159.28	9143.305	9160.045	17.135	0.19
35	3735.955	3799.855	3831.805	3789.205	48.804	1.29
36	6227.97	6275.89	6299.855	6267.905	36.602	0.58
37	4862.155	5053.845	5117.745	5011.248	133.013	2.65
38	8759.92	9015.51	9071.42	8948.95	166.074	1.86
39	7394.105	7537.875	7649.695	7527.225	128.127	1.7
41	5660.875	5756.725	5748.735	5722.112	53.183	0.93
44	4334.995	4406.88	4478.765	4406.88	71.885	1.63
45	8743.945	8879.725	8847.775	8823.815	70.99	0.8
46	12,354.17	12458	12,505.93	12,439.36	77.577	0.62
47	4654.485	4674.6	4702.41	4677.165	24.065	0.51
48	10,700.81	10,860.56	10,944.3	10,835.22	123.707	1.14
50	7545.86	7609.76	7697.615	7617.745	76.192	1
53	5069.82	5149.695	5181.645	5133.72	57.599	1.12
54	8344.58	8448.415	8483.65	8425.548	72.3	0.86
55	10,205.61	10,211.52	10,311.52	10,242.88	59.515	0.58
56	6938.83	7142.12	6735.54	6938.83	203.29	2.93
57	7833.4	7881.325	7873.335	7862.687	25.676	0.33
58	8829.725	8929.725	8927.65	8895.7	57.145	0.64
59	6211.995	6363.75	6371.74	6315.828	90.011	1.43
61	12,034.68	-	-	12,034.68	-	-
64	8144.9	8336.595	8368.545	8283.347	120.958	1.46

65	5748.735	5804.645	5812.635	5788.672	34.816	0.6
66	10,636.92	10,620.94	10,604.97	10,620.94	15.975	0.15
67	10,037.88	10,093.79	10,109.76	10,080.47	37.744	0.37
68	8206.915	8066.915	8120.94	8131.59	70.605	0.87
70	7513.91	7561.835	7569.82	7548.522	30.239	0.4
71	6204.005	6184.5	6188.035	6192.18	10.392	0.17
75	8176.85	8232.76	8280.685	8230.098	51.969	0.63
76	7253.35	7354.165	7386.115	7331.21	69.295	0.95
79	6403.69	6435.635	6443.625	6427.65	21.131	0.33
80	6936.88	6876.88	6874.935	6896.232	35.216	0.51
81	5644.9	5660.875	5716.785	5674.187	37.746	0.67
82	5984.325	6024.325	6036.275	6014.975	27.208	0.45
84	6259.92	6315.83	6283.88	6286.543	28.05	0.45
85	4063.43	4089.45	4029.45	4060.777	30.088	0.74
86	9896.05	9956.05	9886.115	9912.738	37.837	0.38
87	7537.875	7266.305	7258.32	7354.167	159.146	2.16
88	9047.46	9143.305	9138.15	9109.638	53.91	0.59
89	7737.555	7841.385	7913.27	7830.737	88.34	1.13
91	7234.36	7258.32	7226.37	7239.683	16.627	0.23
92	7515.75	7575.97	7537.875	7543.198	30.461	0.4
93	7789.75	7868.5	7889.31	7849.187	52.515	0.67
94	7402.09	7371.4	7394.105	7389.198	15.922	0.22
96	7897.3	7896.55	7977.17	7923.673	46.331	0.58
97	7346.18	7398.24	7358.02	7367.48	27.289	0.37
98	7386.115	8684.5	8719.98	8263.532	760.072	9.2
99	7371.4	7545.86	7617.745	7511.668	126.682	1.69
102	11,023	-	-	11,023	-	-
103	14,486.76	14,518.71	14,542.67	14,516.04	28.05	0.19
105	7282.28	7410.75	7451.5	7381.51	88.318	1.2
106	5844.58	6004.325	6062.35	5970.418	112.775	1.89
107	7769.5	7913.27	7969.185	7883.985	103.013	1.31
108	8096.98	8256.725	8240.75	8198.152	87.981	1.07
111	8719.98	8672.06	8684.5	8692.18	24.866	0.29
112	6858.96	6898.895	6890.91	6882.922	21.132	0.31
117	7761.515	7889.31	7993.145	7881.323	116.021	1.47
118	9713.95	9774.295	9792.7	9760.315	41.194	0.42
119	9926.05	9973.975	10029.9	9976.64	51.976	0.52
121	4071.42	4098.8	4119.345	4096.522	24.044	0.59
122	5828.61	5852.57	5860.555	5847.245	16.625	0.28
125	7907.85	7973.11	7933.32	7938.09	32.891	0.41
126	4263.115	4247.14	4287.075	4265.777	20.1	0.47
127	4834.275	4862.155	4874.055	4856.828	20.418	0.42
128	3691.13	3641.1	3637.01	3656.413	30.135	0.82
Mean	7778.14	7764.68	7784.96	7833.52		
SD	2369.84	2333.16	2335.62	2372.98		
CV%	30.47	30.048	30.00	30.29		

Abbreviations: CV, coefficient of variation; ID, patient identification number; SD, standard deviation.

**Table S2.** Baseline demographics of cardiomegaly patients and age-, and sex-matched controls (*n* = 84).

Variable	Overall ( <i>N</i> = 84)	Age, Sex-Matched Controls ( <i>N</i> = 42)	Cardiomegaly ( <i>N</i> = 42)	<i>p</i> Value
Demographics				
Age, years	61.69 ± 9.97	61.26 ± 9.60	62.12 ± 10.43	0.70
Female sex, <i>n</i> (%)	38 (45.2)	19 (45.2)	19 (45.2)	1.00
Height, cm	160.79 ± 9.10	162.17 ± 9.25	159.41 ± 8.83	0.17
Weight, kg	65.00 ± 13.60	65.34 ± 14.20	64.65 ± 13.13	0.82
Underlying disease				
Hypertension, <i>n</i> (%)	77 (91.7)	38 (90.5)	39 (92.9)	0.69
Diabetes mellitus, <i>n</i> (%)	53 (63.1)	26 (61.9)	27 (64.3)	0.82
Hyperlipidemia, <i>n</i> (%)	36 (42.9)	17 (40.5)	19 (45.2)	0.66
Gouty arthritis, <i>n</i> (%)	24 (28.6)	9 (21.4)	15 (35.7)	0.15
Coronary arterial disease, <i>n</i> (%)	15 (17.9)	8 (19.0)	7 (16.7)	0.78
Atrial fibrillation, <i>n</i> (%)	9 (10.7)	3 (7.1)	6 (14.3)	0.29
Liver disease, <i>n</i> (%)	29 (34.5)	14 (33.3)	15 (35.7)	0.82
Old stroke, <i>n</i> (%)	9 (10.7)	3 (7.1)	6 (14.3)	0.29
Laboratory parameters				
BUN, mg/dL	68.40 ± 17.11	69.98 ± 18.33	66.83 ± 15.85	0.40
Creatinine, mg/dL	10.30 ± 2.08	10.49 ± 2.13	10.10 ± 1.96	0.39
BUN/Cr ratio	6.80 ± 1.76	6.79 ± 1.63	6.82 ± 1.90	0.99
eGFR, mL/min/1.73 m <sup>2</sup>	4.73 ± 1.16	4.66 ± 1.27	4.80 ± 1.05	0.23
Serum osmolality, mOsm/kgH <sub>2</sub> O	310.20 ± 11.21	312.57 ± 10.75	307.83 ± 11.28	0.05*
Glucose, mg/dL	135.04 ± 78.03	136.74 ± 91.19	133.33 ± 63.28	0.69
Sodium, mEq/L	136.70 ± 3.81	137.52 ± 3.46	135.88 ± 4.01	0.05*
Potassium, mEq/L	4.43 ± 0.74	4.34 ± 0.75	4.51 ± 0.74	0.30
Cardiothoracic ratio	0.50 ± 0.06	0.45 ± 0.03	0.55 ± 0.04	<0.01*
Salivary conductivity, µs/cm	7480.58 ± 1890.20	7961.45 ± 1351.23	6999.71 ± 2221.09	<0.01*
Thirst intensity scale scores				
Thirst scale (VAS)	3.11 ± 2.63	3.02 ± 2.64	3.19 ± 2.65	0.77
Thirst scale (CS)	2.86 ± 1.56	2.81 ± 1.61	2.90 ± 1.53	0.69

Values are expressed as mean ± standard deviation or number (percentage). Abbreviations: BUN, blood urea nitrogen; BUN/Cr ratio, blood urea nitrogen to creatinine ratio; eGFR, estimated glomerular filtration rate.