Supplemental Information

INDIRECT CALORIMETRY

Indirect calorimetry (Cosmed Quark RMR with Canopy; Tulipmed, Nieuwegein, Netherlands) is an accurate method of estimating the basal metabolic rate in awake patients. The Cosmed Quark RMR measures REE by using a canopy dilution technique. Before each measurement, gas and pressure calibrations were performed. All patients were spontaneously breathing without supplementary oxygen. Patients had to lie down for 5 minutes in advance to keep their breathing as calm as possible. After that, they had to breathe calmly for 20 minutes with an air-tight transparent plastic canopy hood over their head. The flow rate was directly measured with a digital turbine flowmeter. Expired air was extracted by a pump and analyzed by metabolic cart sensors. The oxygen consumption (VO_2 in mL/minute) and carbon dioxide production (VCO_2 in mL/minute) were measured by oxygen and carbon dioxide gas analyzers. The respiratory quotient was calculated: VCO_2/VO_2. Software used the Weir equation to calculate the REE from oxygen consumption and carbon dioxide production.[34,35]

REE was calculated with the Schofield equation for weight and height.[36] Increased energy expenditure was defined as an increase in measured REE of >10% compared with the calculated REE ([(measured REE/calculated REE) – 1] × 100%). Total energy needed (kcal/day) was calculated by using the following formula[37]:

Total Energy Needed = (measured REE) × (activity factor + disease factor −1) × growth factor/energy absorption coefficient

Total energy intake was calculated from the entries in a 3-day food diary, and this intake was compared with the estimated total energy need. A total energy intake of ≥95% of total energy need was considered sufficient. The eating pattern was categorized as normal or disturbed (deviant from healthy peers) judged by the patients, parents and/or dietician.

SUPPLEMENTAL TABLE 4 Number of Patients With Tube Feeding at Follow-up

Age (y)	ECMO (%)	Non-ECMO (%)	*P*
0.5	23/41 (56)	19/129 (15)	<.001
1	20/38 (53)	16/121 (13)	<.001
2	7/35 (20)	9/98 (9)	.13[a]
5	3/33 (9)	1/67 (1)	.10[a]

[a] Fisher's exact test was used.

SUPPLEMENTAL TABLE 5 Associations Between Growth Measurements and Clinical Variables

Variable	Estimated Coefficient	95% CI	*P*
HFA *z* score			
Follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	−0.12	−0.24 to −0.01	.04
2 y of age	−0.09	−0.25 to 0.07	.26
5 y of age	−0.32	−0.52 to −0.12	.002
8 y of age	−0.30	−0.56 to −0.05	.02
12 y of age	−0.47	−0.80 to −0.15	.005
ECMO	0.21	−0.19 to 0.61	.30
Patch repair	−0.22	−0.52 to 0.08	.15
Gestational age (wk)	0.08	0.001 to 0.15	.047
Days of PICU stay	−0.005	−0.008 to −0.001	.004
Tube feeding at follow-up	0.25	0.06 to 0.44	.009
Calorie-enriched feeds at follow-up	−0.16	−0.34 to 0.02	.08
Interaction term: ECMO × follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	−0.38	−0.63 to −0.12	.005
2 y of age	−0.42	−0.76 to −0.08	.02
5 y of age	−0.63	−1.03 to −0.23	.002
8 y of age	−0.64	−1.10 to −0.17	.008
12 y of age	−0.45	−0.98 to 0.08	.10
Interaction term: days of PICU stay × follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	0.004	0.002 to 0.006	<.001
2 y of age	0.002	−0.001 to 0.005	.29
5 y of age	0.003	−0.001 to 0.007	.10
8 y of age	0.005	0.0001 to 0.01	.045
12 y of age	0.009	0.003 to 0.01	.004
DTH *z* score			
Follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	−0.10	−0.22 to 0.01	.07
2 y of age	−0.07	−0.23 to 0.10	.43
5 y of age	−0.31	−0.51 to −0.11	.002
8 y of age	−0.30	−0.54 to −0.06	.01
12 y of age	−0.60	−0.91 to −0.29	<.001
ECMO	0.32	−0.11 to 0.75	.14
Patch repair	−0.31	−0.60 to −0.02	.04
Gestational age (wk)	0.05	−0.02 to 0.13	.15
Days of PICU stay	−0.006	−0.009 to −0.003	.001
Tube feeding at follow-up	0.29	0.09 to 0.49	.004
Interaction term: ECMO × follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	−0.35	−0.61 to −0.09	.009
2 y of age	−0.46	−0.81 to −0.11	.01
5 y of age	−0.65	−1.05 to −0.24	.002
8 y of age	−0.71	−1.15 to −0.27	.002
12 y of age	−0.42	−0.91 to 0.08	.10
Interaction term: days of PICU stay × follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	0.004	0.002 to 0.006	.001
2 y of age	0.002	−0.002 to 0.005	.33
5 y of age	0.003	−0.0004 to 0.007	.09
8 y of age	0.005	0.001 to 0.01	.02
12 y of age	0.01	0.004 to 0.02	.001
WFH *z* score			
Follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	−0.17	−0.32 to −0.02	.03
2 y of age	−0.33	−0.52 to −0.13	.001

TABLE 5 Continued

Variable	Estimated Coefficient	95% CI	*P*
5 y of age	−0.01	−0.22 to 0.20	.94
8 y of age	0.24	−0.02 to 0.49	.07
12 y of age	0.80	0.45 to 1.14	<.001
ECMO	−0.57	−0.94 to −0.20	.003
Patch repair	−0.50	−0.81 to −0.20	.001
Days of PICU stay	0.002	−0.001 to 0.005	.14
Tube feeding at follow-up	0.66	0.35 to 0.96	<.001
Calorie-enriched feeds at follow-up	−0.30	−0.55 to −0.05	.02
New treatment protocol	0.21	−0.08 to 0.50	.15
Interaction term: tube feeding × follow-up time point			
0.5 y of age	Reference	Reference	—
1 y of age	−0.49	−0.80 to −0.17	.003
2 y of age	−0.48	−0.95 to −0.002	.049
5 y of age	−0.50	−1.26 to 0.26	.19
8 y of age	0	0	—
12 y of age	0	0	—

CI, confidence interval; —, not applicable.

SUPPLEMENTAL TABLE 6 Results of Dietary Consultations and Indirect Calorimetry Measurements

	Sex	ECMO	Nissen	Age (y)	HFA *z* score	DTH *z* score	WFH *z* score	REE Measured (kcal)	REE Calculated (kcal)	Difference Measured REE and Calculated REE (%)	Total Energy Need (kcal/d)	Caloric Intake (% of TEN)	Eating Pattern
1	M	Yes	No	5.3	−2.36	−1.33	−1.23	881	824	+7	1456	80	Disturbed
2	F	Yes	No	3.3	−2.13	−1.51	−0.94	765	727	+5	1509	93	Disturbed
3	M	Yes	Yes	12.1	−2.88	−2.55	−1.96	1309	1090	+20[a]	2680	60	Disturbed
4	M	Yes	No	15.6	−1.11	−1.02	−0.29	2082	1585	+31[a]	3500	96	Normal
5	M	Yes	No	8.2	−2.10	−1.98	−0.94	1159	953	+22[a]	2325	76	Normal
6	F	No	No	12.3	−1.61	−0.85	−0.72	1136	1158	−2	2000	102	Normal
7	F	Yes	Yes	10.3	0.15	0.12	−4.36	1152	1086	+6	2150	75	Disturbed
8	M	No	No	4.4	−1.72	−2.33	−0.18	773	829	−7	1840	98	Normal
9	F	Yes	No	8.2	−2.81	−2.27	−1.82	896	862	+4	1520	63	Disturbed
10	M	Yes	Yes	12.1	−1.45	−2.26	−3.86	1207	1135	+6	1776	89	Disturbed
11	F	Yes	No	3.3	−2.20	−2.39	1.41	993	770	+29[a]	1260	94	Disturbed

F, female; M, male; TEN, total energy needed .

[a] Increased energy expenditure.

SUPPLEMENTAL REFERENCES

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