

RELATIONS OF O₂ SUPPLEMENTATION TO BLOOD SERUM INSULIN-LIKE GROWTH FACTOR-II / INSULIN-LIKE GROWTH FACTOR-BINDING PROTEIN-3 RATIOS IN THE NOT-LIFE-THREATENED HUMAN NEWBORN; ROLE OF ORAL-ENTERAL CALORIC INTAKE BEYOND AXILLARY TEMPERATURE.

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Introduction.

Oral/enteral caloric intake (KOE) insufficiency may accompany human newborn (NWB) respiratory derangements. We detected axillary temperature (TEMP) relations to NWB blood serum Insulin-like Growth Factor-II (IG2)-blood serum Insulin-like Growth Factor-Binding Protein-3 (IB3) ratios (IG2/IB3R). Here we evaluate the TEMP-independent relevance of birth gestational age (GA) and KOE to relationships of O₂ supplementation in respiratory gases (O₂S) with IG2/IB3R in not-life-threatened NWBs.

Methods.

NWBs with any among total parenteral nutrition, parenteral nutrition other than dextrose, blood component transfusion, postnatal corticosteroid treatment, therapeutic hypothermia, life-threatening disease, diabetes mellitus (DM), endocrine diagnosis out of DM, malformation, and mother with DM were excluded. Each of 78 included NWBs had complete data availability for 1) same-day records at one of the first 5 postnatal days (x), 5 days after x (y) and 10 days after x (z) of postnatal age (PNA, unit: day), TEMP (unit: °C), total caloric intake (KT) and KOE (KT, KOE, unit: kcal/kg body weight/24hrs), pulse oximetry (SpO₂, unit: %), O₂S, IG2 and IB3 RIA measurements (unit: uM/dl), and for 2) gender (SEX), GA (unit: complete week; range=28–42), GA ≤ 36 (PTB, n=46), BW (unit: g; range=1200–4150), BW ≤ 10th centile for GA (SGA). We calculated: 1) IG2/IB3R (IG2 through chronologically corresponding IB3), 2) averages over x-y-z times (i.e., (x+y+z)/3), for TEMP (TEMPM; range=36.1–37.0), K (KM), KOE (KOEM), SpO₂ (SpO₂M; range=87.3–100.0) and IG2/IB3 (IG2/IB3M), and 3) percents of KOEM over KM (i.e., (KOEM through KM) × 100, KOEM%KM; range=24.5–100.0). IG2/IB3M normal score according to van der Waerden (IG2/IB3M-NS) resulted near-normally distributed. Multiple Linear Regression (MLR) was used for analyses (MLR computations; male SEX, SGA, O₂S at x (O₂S_x), condition absent=0, condition present=1) (numerosity; male SEX, 43; SGA, 20; O₂S_x, 22).

Results.

Partial correlation coefficient (pcc) for partial correlation between O₂S_x and outcome IG2/IB3M-NS was significant in MLR models bearing, as predictors, 1) SEX, SGA, PNA, TEMPM, KM and O₂S_x (pcc, r₂: .423, p=.0002) or 2) SEX, SGA, PNA, TEMPM, KM, O₂S_x and SpO₂M (pcc, r₂: .403, p=.0004) but not 3) GA and/or KOEM%KM in addition to SEX, SGA, PNA, TEMPM, KM and O₂S_x or 4) GA and/or KOEM%KM in addition to SEX, SGA, PNA, TEMPM, KM, O₂S_x and SpO₂M (MLR R₂: .337–.465, always significant).

Conclusions.

GA and/or KOEM%KM may be involved in O₂S_x - IG2/IB3M-NS relations after control for TEMPM in addition to SEX, SGA, PNA, TEMPM, KM, and SpO₂M.

