

## 极早产儿 3 岁内体格指标追赶生长的特征性研究

秦巧稚, 赵雪琴\*



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**【摘要】** 背景 随着围生医学的进步和发展,极早产儿的存活率明显升高。极早产儿生长发育落后会对其产生长远影响,因此早期的追赶性生长极其重要,目前对极早产儿体格指标的长期追踪较少。**目的** 探讨极早产儿 3 岁内体质量、身高、头围的增长趋势,促进科学追赶生长。**方法** 选取 2017 年 8 月至 2018 年 9 月在江苏省苏北人民医院新生儿重症监护病房诊治的 120 例极早产儿(胎龄 28~32 周)为研究对象,其中小于胎龄儿(SGA)组 11 例,适于胎龄儿(AGA)组 109 例,随机抽取同时间段出生的 121 例足月儿作为对照组。在矫正年龄 40 周,矫正年龄 3、6、12、24 月龄,矫正年龄 36 月龄时进行体质量、身高、头围的测量,计算体格指标 Z 评分、生长速率。**结果** SGA、AGA 极早产儿组和足月儿组各项体格指标 Z 评分在矫正 12 月龄内比较,差异均有统计学意义( $P<0.05$ )。AGA 极早产儿组和足月儿组体质量追赶高峰出现在矫正 3 月龄前,SGA 极早产儿组体质量追赶峰值在矫正 3~6 月龄;AGA 极早产儿组和足月儿组身高以矫正 6 月龄内增长趋势明显,SGA 极早产儿组身高在矫正 3~6 月龄之间出现追赶高峰;AGA 极早产儿组头围在矫正 3 月龄内追赶趋势明显,SGA 极早产儿组头围在矫正 3 月龄后追赶明显,矫正 12 月龄后逐渐变缓。三组在矫正年龄 40 周~12 月龄的体质量生长速率比较,差异有统计学意义( $P<0.05$ );三组在矫正年龄 40 周~24 月龄的身高及头围生长速率比较,差异均有统计学意义( $P<0.05$ )。**结论** 3 岁内 SGA 极早产儿和 AGA 极早产儿体格指标追赶趋势有差别,SGA 极早产儿各体格指标生长速度早期均落后于 AGA 极早产儿且追赶速度不均衡。极早产儿早期体格追赶生长与足月儿有明显的差距,组内不同体格指标出现追赶高峰的时间点不同。

**【关键词】** 婴儿,极度早产;小于胎龄儿;适于胎龄儿;Z 评分;追赶生长

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### Longitudinal Study of Catch-up Growth Assessed by Anthropometric Parameters in Very Premature Infants within 3 Years Old QIN Qiaozhi, ZHAO Xueqin\*

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**【Abstract】** **Background** The improvement in perinatal medicine has promoted the increase of survival rate in very premature infants. Since growth and developmental delays will have a long-term impact on them, early catch-up growth is extremely important. However, there are few longitudinal studies on anthropometric parameters for assessing catch-up growth in such infants. **Objective** To investigate the increasing trend of body weight, body length and head circumference (HC) of very premature infants within 3 years old, providing evidence for promoting scientific catch-up growth in such infants. **Methods** Participants were selected from Northern Jiangsu People's Hospital during August 2017 to September 2018, including 120 ICU-treated very premature infants delivered at 28-32 weeks of gestation, who were divided into two group [small for gestational age (SGA) group ( $n=11$ ) and appropriate for gestational age (AGA) group ( $n=109$ )], and 121 full-term infants. Body weight and length as well as HC were measured at 40 weeks, 3, 6, 12, 24 months of corrected age and 36 months, respectively, and Z-scores and growth rates of these three parameters were calculated. **Results** The Z-scores of body weight, body length and HC differed statistically across SGA, AGA and full-term infants within 12 months of corrected age ( $P<0.05$ ). The catch-up growth for weight peaked within 3 months of corrected age in AGA infants and full-term infants, and it peaked within 3 to 6 months of corrected age in SGA infants. The growth for height showed a significant increase trend within 6 months of corrected age in AGA and full-term infants. For SGA infants, the catch-up growth for height peaked within 3 to 6 months of

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corrected age. The HC of AGA infants had an obvious trend of catch-up growth within 3 months of corrected age, while SGA infants' catch-up growth for HC was obvious after 3 months of corrected age, and it gradually slowed down after 12 months of corrected age. The body weight growth rate varied statistically across SGA, AGA and full-term infants during 40 weeks to 12 months of corrected age ( $P<0.05$ ). There were statistically differences of growth rates in body length and HC between the three groups during 40 weeks to 24 months of corrected age ( $P<0.05$ ). **Conclusion** The trends of catch-up growth for body weight, height and HC were significantly different between SGA and AGA infants within 3 years old. Compared with AGA infants, the early catch-up growth rates of these three parameters in SGA infants were slower and imbalanced. Compared to full-term infants, the early catch-up growth rates of the three parameters in very premature infants were significantly slower. And the time point of peak for catch-up growth for each parameter varied significantly between SGA and AGA infants.

**【Key words】** Infant, extremely premature; Small for gestational age; Appropriate for gestational age; Z scores; Catch-up growth

随着医疗技术及营养支持水平的不断提高,早产儿的出生率及存活率逐渐升高。我国每年出生的早产儿居世界第二<sup>[1]</sup>。早产儿早期的生长模式不同于正常足月儿,需通过适宜的追赶生长以缩小与同龄足月儿的差距。追赶生长是指早产儿在生长发育过程中去除某些阻碍生长的因素(营养不良或疾病等)后出现的加速生长<sup>[2]</sup>,以恢复到原有的生长轨道上。近年研究表明,低出生体质量儿童早期的快速追赶生长可能会增加成年后代谢性疾病和心血管病的发病风险<sup>[3]</sup>。目前主张低出生体质量儿童应采取“适度的追赶生长”,这样既避免了由于早期生长不足增加脑发育和体格发育落后的风险,又减少因过快追赶生长而增加成年后的慢性病风险。然而目前“最适宜”的追赶生长模式仍没有标准,加强生长监测和合理评估是有效的探索手段。极早产儿胎龄小,各组织器官发育成熟度相对更低,更需要重点关注他们的追赶性生长。目前国内对于早产儿体格指标的长期监测研究相对较少,国外已有对早产儿的远期随访,但对极早产儿的研究仍属罕见。本研究对我院出生的极早产儿进行3年生长发育的回顾性研究,探索其追赶生长模式,为极早产儿出生后的随访提供参考,降低体格追赶生长失败率。

## 1 对象与方法

1.1 研究对象 选取2017年08月至2018年09月在江苏省苏北人民医院新生儿重症监护病房诊治并在儿保门诊按时体检的120例极早产儿(胎龄28~32周,出生体质量860~1 499 g)及同时间段出生的121例足月儿作为研究对象,收集其在本院体检的体格指标资料。早产儿体检频率参考《中国儿童体格生长评价建议》<sup>[4]</sup>:出院后6月龄内1次/月,6~12月龄1次/2个月,1~3岁1次/3个月。排除标准:有外科手术史、发育异常、遗传代谢性疾病、体格指标数据不全。本研究经江苏省苏北人民医院伦理委员会批准(伦理批号:2021ky300)。

1.2 分组 根据小于胎龄儿(small for gestational age, SGA)及适于胎龄儿(appropriate for gestational age, AGA)的定义<sup>[3]</sup>,参照Fenton早产儿生长曲线查找

### 本文价值及局限性:

本文着重研究了极早产儿前3年的体格生长发育情况,这部分早产儿宫内孕育时间短,各组织器官成熟度低,体格发育及神经系统发育均落后。本研究通过对各时间段体格指标的监测,可以较客观地评估极早产儿各时间段追赶生长的情况,并根据测量指标进行更好地营养干预。同时,本研究揭示了极早产儿的生长模式,为临床促进极早产儿追赶生长提供了参考。在今后的研究中可以将神经系统发育追赶情况纳入研究,完善极早产儿的生长发育评估。

各胎龄相应体质量<sup>[5]</sup>,将出生体质量在同胎龄平均体质量的第10至90百分位的极早产儿归为AGA极早产儿组,出生体质量在第10百分位以下的极早产儿归为SGA极早产儿组。其中AGA极早产儿组109例(男60例、女49例),SGA极早产儿组11例(男7例、女4例),同时间段出生的121例健康足月适龄儿(男60例、女51例)归为足月儿组。

### 1.3 方法

1.3.1 资料收集 AGA、SGA极早产儿组及足月儿组在矫正年龄40周,矫正年龄3、6、12、24月龄,矫正年龄36月龄进行生长发育监测。并由儿保科医师采用相同测量工具对其体质量、身长、头围进行监测,体质量精确至0.01 kg,身长和头围精确至0.1 cm。

1.3.2 评价方法 参照2006年WHO 7岁以下儿童生长标准进行Z评分。Z评分=(实际测量值-该性别该月龄平均值)/该性别该月龄标准差。正常Z评分范围为-2~2。生长速率=(后一年龄Z评分-前一年龄Z评分)/两个年龄点间隔时间(月)。由于儿童生长发育存在地区差异,本研究选择了同地区的足月儿作为参照。

1.4 统计学方法 使用SPSS 23.0统计软件进行数据分析。不符合正态分布的计量资料以 $M(P_{25}, P_{75})$ 表示,组间比较采用非参数检验(Kruskal-Wallis H检验)。以 $P<0.05$ 为差异有统计学意义。

## 2 结果

2.1 一般资料 极早产儿120例,出生胎龄28~32周,

其中SGA极早产儿组11例(男7例、女4例),出生体质量0.86~1.15 kg,出生身长33.5~41.2 cm;AGA极早产儿组109例(男60例、女49例),出生体质量0.96~1.59 kg,出生身长36.9~45.3 cm。足月儿组121例(男60例、女51例),出生胎龄37~40周,出生体质量3.06~3.73 kg,出生身长49.8~51.0 cm。

2.2 三组体格指标Z评分比较 SGA极早产儿组的三项体格指标Z评分在矫正12月龄内均为负数,12月龄后均追赶生长至正值;AGA极早产儿组的体质量、身长Z评分在矫正6月龄后追赶生长至正值,头围Z评分在矫正12月龄后追赶生长至正值;足月儿组体质量、身长、头围Z评分均大于0。SGA、AGA极早产儿组和足月儿组各项体格指标Z评分在矫正12月龄内比较,差异均有统计学意义( $P<0.05$ )。三组在矫正24月龄及36月龄时各指标Z评分比较,差异无统计学意义( $P>0.05$ ),见表1。

2.3 三组体格指标Z评分的追赶趋势 三组体格指标Z评分均呈一定的追赶趋势,但出现追赶高峰的时间点及特征均不同。

2.3.1 体质量 三组体质量Z评分在矫正6月龄内追赶明显,AGA极早产儿组及足月儿组的Z评分追赶峰值出现在矫正3月龄前,SGA极早产儿组追赶高峰在矫正3~6月龄时;矫正6月龄后各组Z评分仍在增长但趋势逐渐变缓,矫正12月龄后趋于平缓,见图1。

2.3.2 身长 三组身长Z评分早期均追赶明显但特点不同,AGA极早产儿组和足月儿组以矫正6月龄内增长

趋势明显,AGA极早产儿组矫正6~12月龄之间追赶趋势较前期降低,矫正12月龄后追赶趋势趋向于足月儿;SGA极早产儿组矫正3月龄之前追赶较慢,矫正3~6月龄之间出现追赶高峰,矫正12~24月龄SGA极早产儿组仍有追赶趋势;足月儿组Z评分整体平稳增长,见图2。

2.3.3 头围 极早产儿两组头围Z评分表现为追赶性生长,AGA极早产儿组在矫正3月龄内追赶明显,后持续增长至矫正12月龄;SGA极早产儿组在矫正3月龄后追赶趋势明显,矫正12月龄后逐渐变缓,矫正12月龄时SGA极早产儿组及AGA极早产儿组头围Z评分均低于同龄足月儿组,见图3。

2.4 三组体格生长速率的变化 AGA极早产儿组各指标生长速率最快出现在矫正0~6月龄期间,SGA极早产儿组各指标生长高峰见于矫正3~6月龄,矫正6~12月龄生长也较为迅速。三组在矫正40周~12月龄期间的体质量生长速率比较,差异有统计学意义( $P<0.05$ );三组的身长及头围生长速率在矫正40周~24月龄期间比较,差异均有统计学意义( $P<0.05$ )。三组在矫正36月龄时各指标生长速率比较,差异无统计学意义( $P>0.05$ ),见表2。

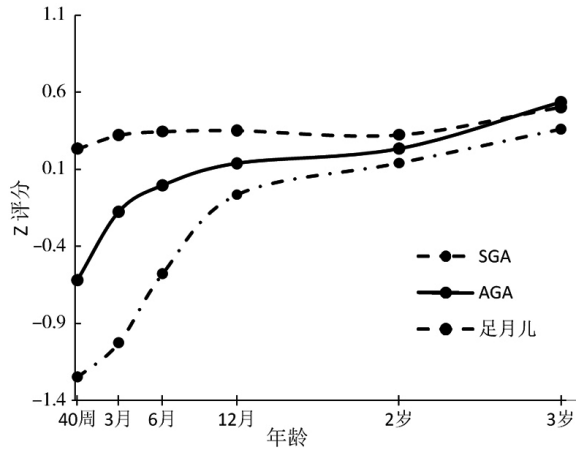
### 3 讨论

早产儿由于宫内发育时间较短,各项体格发育指标明显落后于足月儿,且追赶速度不均衡。追赶生长是2岁前幼儿的正常现象,出生体质量较低的婴儿,为了接近遗传所确定的生长轨道,就要采取追赶生长以回归到正常的范围之内,其中AGA早产儿的追赶生长好于

表1 三组体格指标Z评分比较 [ $M(P_{25}, P_{75})$ ]  
Table 1 Comparison of Z-scores of body weight, body length and head circumference among three groups

| 体格指标 | 矫正月龄 | SGA极早产儿组 (n=11)         | AGA极早产儿组 (n=109)        | 足月儿组 (n=121)          | H值     | P值     |
|------|------|-------------------------|-------------------------|-----------------------|--------|--------|
| 体质量  | 40周  | -1.250 (-1.075, -1.350) | -0.621 (-0.925, -0.150) | 0.232 (0.100, 0.475)  | 32.283 | <0.001 |
|      | 3个月  | -1.028 (-0.754, -1.293) | -0.177 (-0.320, 0.015)  | 0.321 (0.173, 0.615)  | 35.060 | <0.001 |
|      | 6个月  | -0.58 (-0.378, -0.644)  | -0.005 (-0.100, 0.111)  | 0.345 (0.233, 0.511)  | 34.032 | <0.001 |
|      | 12个月 | -0.066 (-0.327, 0.164)  | 0.139 (-0.064, 0.390)   | 0.352 (0.030, 0.609)  | 8.857  | 0.012  |
|      | 24个月 | 0.139 (-0.054, 0.323)   | 0.234 (0.085, 0.415)    | 0.324 (0.162, 0.408)  | 2.666  | 0.264  |
|      | 36个月 | 0.359 (-0.080, 0.573)   | 0.537 (0.267, 0.853)    | 0.504 (0.313, 0.638)  | 1.083  | 0.582  |
| 身长   | 40周  | -1.460 (-1.556, -1.333) | -0.608 (-0.889, -0.278) | 0.145 (0.056, 0.278)  | 35.424 | <0.001 |
|      | 3个月  | -1.241 (-1.478, -1.000) | -0.360 (-0.478, -0.227) | 0.249 (0.136, 0.348)  | 39.475 | <0.001 |
|      | 6个月  | -0.615 (-0.792, -0.391) | -0.095 (-0.174, 0.043)  | 0.323 (0.174, 0.522)  | 37.200 | <0.001 |
|      | 12个月 | -0.103 (-0.250, 0.074)  | 0.127 (-0.036, 0.321)   | 0.365 (0.286, 0.464)  | 23.695 | <0.001 |
|      | 24个月 | 0.131 (0, 0.305)        | 0.141 (0.083, 0.222)    | 0.187 (0.086, 0.306)  | 1.260  | 0.533  |
|      | 36个月 | 0.227 (0.054, 0.410)    | 0.146 (0.027, 0.333)    | 0.133 (0.026, 0.308)  | 2.186  | 0.335  |
| 头围   | 40周  | -1.174 (-1.250, -1.083) | -0.966 (-1.250, -0.667) | 0.054 (-0.083, 0.167) | 28.615 | <0.001 |
|      | 3个月  | -1.154 (-1.385, -0.923) | -0.769 (-0.846, -0.615) | 0.055 (0, 0.077)      | 32.810 | <0.001 |
|      | 6个月  | -0.832 (-1.077, -0.615) | -0.629 (-0.692, -0.538) | 0.137 (0, 0.231)      | 29.688 | <0.001 |
|      | 12个月 | -0.245 (-0.462, 0.077)  | -0.163 (-0.307, 0.000)  | 0.110 (0.077, 0.154)  | 14.039 | <0.001 |
|      | 24个月 | 0.133 (0.076, 0.230)    | 0.136 (0.077, 0.231)    | 0.132 (0, 0.231)      | 0.060  | 0.970  |
|      | 36个月 | 0.161 (0.077, 0.385)    | 0.158 (0.077, 0.308)    | 0.165 (0, 0.230)      | 0.036  | 0.982  |

注: SGA= 小于胎龄儿, AGA= 适于胎龄儿, Z评分= (实际测量值 - 该性别该月龄平均值) / 该性别该月龄标准差



注: SGA= 小于胎龄儿, AGA= 适于胎龄儿

图1 三组各月龄体质量 Z 评分追赶趋势

Figure 1 The trend of catch-up growth for body weight z-score among three groups at different months of corrected age

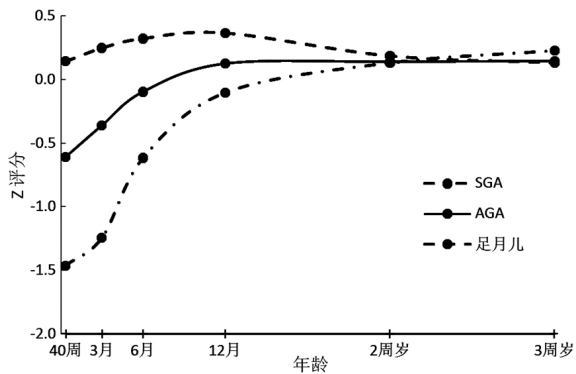


图2 三组各月龄身长 Z 评分追赶趋势

Figure 2 The trend of catch-up growth for body length z-score among three groups at different months of corrected age

SGA 早产儿<sup>[3]</sup>。研究表明,生长是预先设定在某个阶段或时期发生的,早产儿在出院后至矫正年龄 2~3 月龄内存在一个生长发育的“机会窗”,如果错过关键时期,可能无法弥补,即使短期的生长受限也可能影响早产儿的身体健康,甚至影响其大脑的生长和发育<sup>[6-7]</sup>。掌握这些关键期,可以帮助早产儿更好地进行生长追赶。极早产儿的生长速率明显慢于足月儿,SGA 极早产儿更是落后,需要高度重视极早产儿的早期追赶生长。建立科学的早产儿管理制度、定期监测早产儿体格生长指标、为每个早产儿量身定制合适的追赶方案、科学合理喂养、实施有效干预措施等,对促进早产儿体格指标达到适宜的追赶生长具有极高的临床意义及社会价值。

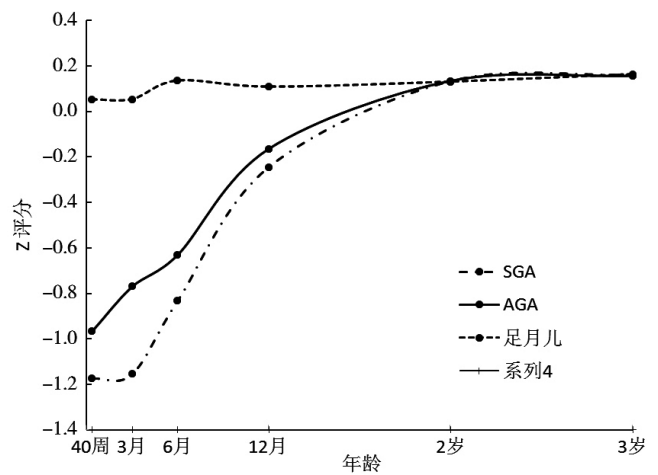


图3 三组各月龄头围 Z 评分追赶趋势

Figure 3 The trend of catch-up growth for head circumference z-score among three groups at different months of corrected age

表2 三组体格生长速率比较 [ M ( P<sub>25</sub>, P<sub>75</sub> ) ]

Table 2 Comparison of growth rates assessed by body weight, body length and head circumference among three groups

| 体格指标 | 矫正月龄       | SGA 极早产儿组 (n=11)      | AGA 极早产儿组 (n=109)     | 足月儿组 (n=121)           | H 值    | P 值    |
|------|------------|-----------------------|-----------------------|------------------------|--------|--------|
| 体质量  | 40 周 ~3 个月 | 0.073 (-0.026, 0.180) | 0.148 (0.014, 0.232)  | 0.030 (-0.049, 0.163)  | 6.530  | 0.038  |
|      | 3~6 个月     | 0.149 (0.095, 0.227)  | 0.057 (0.002, 0.113)  | 0.008 (-0.072, 0.101)  | 12.954 | 0.002  |
|      | 6~12 个月    | 0.086 (0.030, 0.140)  | 0.024 (-0.008, 0.054) | 0.001 (-0.015, 0.025)  | 13.834 | 0.001  |
|      | 12~24 个月   | 0.012 (-0.004, 0.027) | 0.007 (-0.013, 0.031) | -0.002 (-0.022, 0.020) | 0.934  | 0.627  |
|      | 24~36 个月   | 0.030 (-0.007, 0.051) | 0.025 (-0.011, 0.049) | 0.015 (-0.007, 0.041)  | 1.045  | 0.593  |
| 身长   | 40 周 ~3 个月 | 0.073 (0.028, 0.126)  | 0.088 (-0.029, 0.196) | 0.021 (-0.023, 0.076)  | 6.661  | 0.036  |
|      | 3~6 个月     | 0.209 (0.171, 0.242)  | 0.083 (0.060, 0.119)  | 0.088 (-0.007, 0.194)  | 17.462 | <0.001 |
|      | 6~12 个月    | 0.085 (0.069, 0.105)  | 0.037 (0.008, 0.061)  | -0.018 (-0.051, 0.029) | 21.428 | <0.001 |
|      | 12~24 个月   | 0.019 (0.001, 0.046)  | 0.001 (-0.011, 0.013) | -0.015 (-0.027, 0.002) | 16.806 | <0.001 |
|      | 24~36 个月   | 0.008 (0.002, 0.015)  | 0 (-0.017, 0.015)     | 0.007 (-0.003, 0.025)  | 1.870  | 0.393  |
| 头围   | 40 周 ~3 个月 | 0.007 (-0.053, 0.105) | 0.065 (0.021, 0.109)  | 0 (-0.028, 0.053)      | 8.626  | 0.013  |
|      | 3~6 个月     | 0.107 (0.051, 0.179)  | 0.047 (0.026, 0.077)  | 0.027 (0, 0.077)       | 6.195  | 0.045  |
|      | 6~12 个月    | 0.098 (0.051, 0.154)  | 0.078 (0.051, 0.103)  | -0.005 (-0.013, 0.013) | 26.006 | <0.001 |
|      | 12~24 月    | 0.031 (0.006, 0.058)  | 0.025 (0.013, 0.045)  | 0.002 (-0.006, 0.013)  | 11.971 | 0.003  |
|      | 24~36 个月   | 0.002 (-0.013, 0.013) | 0.002 (-0.013, 0.013) | 0.003 (-0.013, 0.019)  | 0.164  | 0.921  |

注: 生长速率 = (后一年龄数据 - 前一年龄数据) / 两个年龄点间隔时间 (月)

本研究选择生长发育指标中的体质量、头围、身长进行为期3年的动态监测发现,极早产儿体格生长在矫正12月龄内的各项体格指标Z评分追赶趋势显著,Z评分从负值逐渐追赶为正值。各组间体格指标生长速率高峰期不同,AGA极早产儿组及足月儿组速度最快在矫正3月龄左右,SGA极早产儿组则相对落后,与相关研究<sup>[2]</sup>结果一致。这可能与早产儿辅食添加时间及方式<sup>[8]</sup>、容易出现喂养不耐受、蛋白过敏发生率高等有关。各体格指标之间也存在速度差异:极早产儿组体质量的追赶生长主要在矫正6月龄内,6月龄后各组仍在增长但趋势逐渐变缓;AGA极早产儿组身长及头围在矫正6月龄内增长趋势明显,后逐渐变缓;SGA极早产儿组身长及头围追赶峰值出现在矫正3~6月龄之间,晚于AGA极早产儿组。SGA极早产儿组各体格指标生长速度早期落后明显且追赶速度不均衡,与国内其他研究结果一致<sup>[9]</sup>。

有研究已经证明极低体质量早产儿在矫正12月龄时生长追赶失败率为50%<sup>[10-12]</sup>。本研究中极早产儿体质量、身长和头围均有明显的追赶性增长,无追赶失败案例。KNOPS等<sup>[13]</sup>发现AGA极早产在10岁时没有表现出发育不良;然而,许多SGA早产儿表现出持续发育不良。NAGASAKA等<sup>[14]</sup>发现,3岁时早产儿身材矮小的发生率是足月儿的2倍,而SGA早产儿身材矮小的发生率是足月儿的4.5倍。ZHAO等<sup>[15]</sup>发现SGA与低体质量、身材矮小息息相关。SGA早产儿维持正常的体格生长需要更好的营养支持,容易出现喂养不耐受、蛋白质过敏、宫外生长迟缓等并发症<sup>[16]</sup>,这些均会对其生长追赶产生长远影响,导致其体格甚至神经运动发育落后于同龄儿。

本研究中极早产儿生长迟缓的发生率低于发展中国家<sup>[10-12]</sup>,在矫正12月龄时三项体格指标与WHO提供的12月龄同性别儿童的平均数差值小于一个标准差,这受益于营养支持水平的提高和常规随访的改善。有研究者认为早产儿的追赶性生长通过细致的监测和积极干预会明显加快<sup>[17]</sup>,消除不利因素,早产儿就会有追赶上普通儿童的潜力。

对早产儿的长期随访表明,出生后体质量快速增长可能会增加未来罹患代谢性疾病的风险,尤其在SGA早产儿中较为明显<sup>[18-19]</sup>。早产儿需要摄入更多蛋白质,其生长速度才能与相同孕周的正常胎儿生长速度更接近,长期随访表明,出生后体质量增加较快会增加后期心血管疾病的风险<sup>[20-21]</sup>。相反,一项纵向研究显示婴儿早期体质量的快速增长没有影响青春期的代谢状态,但儿童时期体质量迅速上涨会导致青春期代谢异常<sup>[22]</sup>。幼儿期和青春期的生活方式比早期生长追赶和营养干预更容易引起代谢性疾病<sup>[23]</sup>。根据目前的证据,早产儿生长缓慢和生长过速均会对其长期健康产生影响。因此

合适的生长追赶方式对早产儿非常重要,但是加强喂养并不等于过度喂养,高质量的喂养模式需要定期随访、适当干预、充分的医患沟通和合理的家庭喂养,以强化早产儿神经发育、降低肥胖率及营养不良发生率。对于早产儿体格指标的随访可以延长至青春期,以明确追赶性生长对代谢的远期影响。

综上所述,早产儿的追赶生长一般出现在矫正24月龄以前,极早产儿早期体格追赶生长与足月儿有明显差距,组内不同体格指标出现追赶高峰的时间点不同。SGA极早产儿组各体格指标生长速度早期均落后于AGA极早产儿组且追赶速度不均衡。定期的随访及干预可以减少生长追赶失败率。

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