

Rolandic 区小棘波与癫痫发作相关性

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【摘要】 探讨 Rolandic 区小棘波与癫痫发作间的关系。选择 118 例视频脑电图监测过程中记录到 Rolandic 区小棘波患儿, 男性 62 例, 女性 56 例; 年龄 3 个月至 4 岁 5 个月 (3 个月至 2 岁者 85 例, 约占 72.03%)。其中 101 例 (85.59%) 存在癫痫发作, 包括热性惊厥 42 例 (35.59%)、轻度胃肠炎伴良性婴幼儿惊厥 35 例 (29.66%) 和癫痫 24 例 (20.34%), 17 例 (14.41%) 为非癫痫发作。婴幼儿 Rolandic 区小棘波与癫痫发作具有高度相关性, 但不具高度特异性, Rolandic 区小棘波是否能够作为诊断癫痫和确定癫痫灶的依据, 仍待进一步研究证实。

【关键词】 癫痫; 脑电描记术; 儿童, 学龄前

The correlation of small spikes in Rolandic area and epileptic seizures

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【Abstract】 The correlation between small spikes in Rolandic area and epileptic seizures was investigated. In this thesis, small spikes in Rolandic area were found in 118 cases recorded by video electroencephalogram (VEEG) monitoring. And the 118 patients were chose to be studied in our research. Among the 118 cases, 62 were male and 56 were female. The youngest was only 3-month-old, and the eldest was 4 years and 5 months old. Eighty-five cases were between 3 months and 2 years old which accounted for 72.03%. There were 101 patients (85.59%) having seizures: 42 cases (35.59%) of febrile convulsion, 35 (29.66%) of benign infantile convulsions with mild gastroenteritis (BICG) and 24 (20.34%) of epilepsy; 17 cases (14.41%) of non-epileptic seizures. Hence, there is high correlation between infantile small spikes in Rolandic area and epileptic seizures. But it does not indicate any specificity. Whether small spikes in Rolandic area can be used as certain evidence to diagnose epilepsy and locate the onset of lesions requires further study to confirm.

【Key words】 Epilepsy; Electroencephalography; Child, preschool

Rolandic 区小棘波在婴幼儿睡眠脑电图中较常见, 表现为棘波成分电压极低, 以双极纵向导联显示最清楚, 参考导联不明显。既往对 Rolandic 区小棘波的研究仅限于其与婴儿良性惊厥的关系。目前, 脑电图专家和小儿神经科专家对 Rolandic 区小棘波与癫痫发作的相关性尚存争议, 笔者对 118 例脑电图记录中出现 Rolandic 区小棘波患儿的癫痫发作进行观察并分析其特点, 以为临床提供参考。

临床资料

一、观察对象

所有病例均为 2010 年 9 月-2012 年 9 月湖南省

儿童医院神经内一科门诊或住院治疗并接受视频脑电图 (VEEG) 检查的癫痫患儿, 共 118 例。

1. 诊断标准 脑电图诊断参照刘晓燕^[1]标准, 癫痫综合征诊断依据 1989 年国际抗癫痫联盟 (ILAE) 癫痫和癫痫综合征国际分类及 2001 年 Engel 癫痫综合征分类举例^[2-3]。Rolandic 区小棘波诊断符合以下电生理学标准: (1) 出现于年龄为 3~24 个月婴儿, 偶见于 2 岁以上幼儿。(2) 出现时间为睡眠纺锤期和快速眼动睡眠期 (REM)。(3) 波形特点为棘波成分电压极低, 约 50 μ V, 其后伴随高波幅慢波。(4) 出现部位为双侧 Rolandic 区, 双极纵向导联以 C3-P3 或 C4-P4 导联最为清楚, 参考导联常难以识别。(5) 出现方式为单侧或双侧散发^[4]。

2. 病例分组 (1) 热性惊厥 (FC) 组: 发病年龄 6 个月至 5 岁, 每次发作均伴发热, 包括单纯性和复

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杂性热性惊厥,排除婴幼儿期发病、与发热相关、已定义的其他癫痫综合征,如 Dravet 综合征^[5]和中枢神经系统感染。(2)轻度胃肠炎伴良性婴幼儿惊厥(BICG)组:既往身体健康的6个月至3岁婴幼儿;轻度胃肠炎伴无热惊厥,可有轻度脱水,但无明显酸中毒和电解质紊乱;一次病程中可单次或多次出现惊厥发作;发作间期脑电图正常或仅表现为中央、顶区小尖波;血清电解质、血糖和脑脊液各项指标均于正常值范围;预后良好;需排除癫痫和中枢神经系统感染^[6]。(3)癫痫组:临床诊断为癫痫,包括特发性和症状性癫痫。(4)非癫痫发作(NES)组:均经临床检查和视频脑电图证实为非癫痫发作,病史中无肯定的癫痫发作,神经系统检查和影像学无异常征象,智力和运动发育正常。

二、视频脑电图监测方法

所有患儿均于检查前晚,根据年龄大小进行不同时间的睡眠剥夺,清洗头部,晨起进食,进入检查室后先清洗头皮油脂,再根据国际 10-20 系统安置 19 导联电极并进行记录。采用日本光电工业株式会社生产的视频脑电图仪,按照清醒-睡眠-清醒(唤醒)记录患儿的脑电活动,并在清醒期完成睁-闭眼、闪光刺激、过度换气等诱发试验,记录时间为 1~6 h。然后,分别以参考导联(平均参考电极)和双极导联(必须包括双极纵向导联)回放脑电图和同步视频资料。

结 果

在我院 2010 年 9 月-2012 年 9 月脑电图室接受视频脑电图检查的患儿中,139 例记录到 Rolandic 区小棘波,其中 118 例符合入组标准,男性 62 例,女性 56 例;年龄 3 个月至 4 岁 5 个月,平均 1 岁 5 个月,其中 3 个月至 2 岁者 85 例,约占 72.03%。118 例中经病史和视频脑电图证实为癫痫发作者 101 例,占 85.59%,分别为热性惊厥 42 例(35.59%)、轻度胃肠炎伴良性婴幼儿惊厥 35 例(29.66%)和癫痫 24 例(20.34%);经病史和视频脑电图证实为非癫痫发作者 17 例,占 14.41%。癫痫组 24 例患儿中 18 例 Rolandic 区小棘波为视频脑电图记录到的唯一癫痫

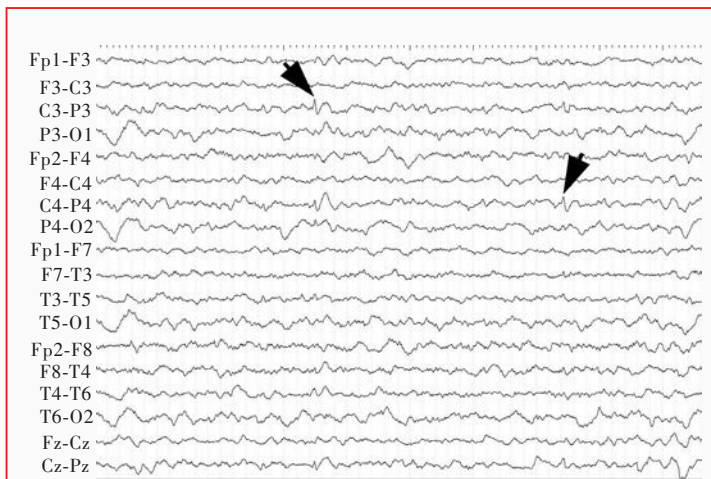


图 1 男性患儿,4 岁 5 个月,临床诊断为热性惊厥。视频脑电图显示,非快速眼动睡眠期 I 和 II 期双极纵向导联中央、顶区小棘波(箭头所示)

Figure 1 Male, 4 years and 5 months old, with febrile seizures. Small spikes in Rolandic area were found in the bipolar longitudinal lead at non-rapid eye movement (NREM) sleep I - II phase (arrows indicate).

表 1 118 例患儿治疗前后 Rolandic 区小棘波出现率的比较 例(%)

Table 1. Distribution and follow-up of 118 children with small spikes in Rolandic area case (%)

Time	N	FC	BICG	Epilepsy	NES
Before treatment	118	42 (35.59)	35 (29.66)	24 (20.34)	17 (14.41)
After treatment	118	8 (6.78)	9 (7.63)	17 (14.41)	12 (10.17)
χ^2 value		19.352	13.062	1.019	0.684
P value		0.000	0.000	0.313	0.408

FC, febrile convulsion, 热性惊厥; BICG, benign infantile convulsions with mild gastroenteritis, 轻度胃肠炎伴良性婴幼儿惊厥; NES, non-epileptic seizures, 非癫痫发作

性异常脑电活动。热性惊厥组出现 Rolandic 区小棘波患儿的年龄偏大,最大者为 4 岁 5 个月(图 1)。118 例患儿经治疗后 2~4 周复查脑电图,热性惊厥组和轻度胃肠炎伴良性婴幼儿惊厥组 Rolandic 区小棘波显著减少(均 $P = 0.000$),而癫痫组和非癫痫发作组患儿则无明显变化(均 $P > 0.05$,表 1)。

讨 论

Rolandic 区系指大脑半球凸面的感觉运动皮质区域。Rolandic 区小棘波最初在婴儿良性惊厥患儿的脑电图被记录到^[7-8]。有学者认为,Rolandic 区小棘波是婴幼儿特有的脑电现象,反映其皮质兴奋性较高,与癫痫发作无关。另有一些学者则认为,Rolandic 区小棘波波幅较低,是因为头皮电极记录到的波幅被颅骨衰减的缘故,临床明确诊断的癫痫

患儿棘波或尖波波幅也可以很低;而且 Rolandic 区小棘波可反复出现、部位固定,大部分患儿伴惊厥发作,因此 Rolandic 区小棘波与癫痫发作相关。总之,婴幼儿 Rolandic 区小棘波是否与癫痫发作相关仍存争议,因此确定 Rolandic 区小棘波的性质至关重要,将决定患儿诊断、治疗及预后。

在 2001 年的 Engel 癫痫综合征分类举例中,热性惊厥被定义为不诊断癫痫的癫痫发作。热性惊厥以儿童常见,约占 5 岁以下儿童的 2.30% ~ 4.50%,发病年龄为 6 个月至 5 岁,高峰年龄为 6 个月至 3 岁。据文献报道,热性惊厥患儿脑电图癫痫样电活动阳性率为 6%^[9],但未说明是否包括 Rolandic 区小棘波。常规热性惊厥应于热退后 10 ~ 15 天记录脑电图,但是在目前医疗环境下,一般会在热性惊厥发作的第 2 ~ 3 天甚至当天完成脑电图记录。轻度胃肠炎伴良性婴幼儿惊厥是否诊断为癫痫,在 2001 年的 Engel 癫痫综合征分类举例中未提及,可能是更多见于发展中国家的缘故。轻度胃肠炎伴良性婴幼儿惊厥发病年龄与 Rolandic 区小棘波的出现年龄基本吻合,在黄铁栓等^[10]报告的 40 例轻度胃肠炎伴良性婴幼儿惊厥患儿中有 5 例脑电图记录到中央、顶区小尖波,发生率约为 12.50%,本研究有 35 例(29.66%)轻度胃肠炎伴良性婴幼儿惊厥患儿记录到 Rolandic 区小棘波。值得注意的是,热性惊厥组和轻度胃肠炎伴良性婴幼儿惊厥组患儿在发病 2 ~ 4 周后复查脑电图时,Rolandic 区小棘波明显减少(均 $P = 0.000$),表明这些患儿癫痫发作后早期运动皮质兴奋性较高。存在 Rolandic 区小棘波的热性惊厥和轻度胃肠炎伴良性婴幼儿惊厥患儿进展为癫痫的概率是否高于无 Rolandic 区小棘波的同龄儿童,有待进一步的随访研究。

婴幼儿期是癫痫的首个高发年龄段^[11-12],部分癫痫性脑病如 West 综合征^[13-14]、Dravet 综合征^[15-16]等发病年龄与 Rolandic 区小棘波的出现年龄存在交叉,此类患儿脑电图记录中是否出现 Rolandic 区小棘波,国内尚无文献报道。本研究癫痫组 24 例患儿中 18 例 Rolandic 区小棘波为视频脑电图记录到的唯一癫痫样电活动,可能与脑电图工作者的习惯有关,脑电图检查室的初始记录一般默认为参考导联,回放时如果参考导联有明显的癫痫样电活动,双极纵向导联的 Rolandic 区小棘波即会被忽略。唯有在参考导联无明显癫痫样电活动时,才会采用双极导联回放,因此 Rolandic 区小棘波的实际病例数

可能更多。癫痫组患儿 2 ~ 4 周后复查时,Rolandic 区小棘波较为稳定,是否提示 Rolandic 区小棘波即为这些患儿癫痫发作的责任癫痫灶尚待进一步检查,如颅内电极脑电图或 fMRI 检查等加以证实。

儿科医师对非癫痫发作与癫痫发作的鉴别十分重要,非癫痫发作患儿如果脑电图出现癫痫样放电,可能被误诊为癫痫而给予抗癫痫药物治疗,给患儿身体和心理带来巨大伤害。一些非癫痫发作如非癫痫性强直发作、屏气发作、擦腿综合征等在婴幼儿期发生率极高,与 Rolandic 区小棘波的出现年龄相当,进行脑电图检查时也可能记录到 Rolandic 区小棘波,本组有 17 例(14.41%)非癫痫发作患儿记录到 Rolandic 区小棘波,经视频脑电图证实与这些发作性事件无关。

本组约有 85.59%(101/118)的 Rolandic 区小棘波患儿存在癫痫发作,因此笔者认为,婴幼儿 Rolandic 区小棘波与癫痫发作具有高度相关性。但 Rolandic 区小棘波也出现在特定年龄段智力发育良好的非癫痫发作患儿中,因此其对癫痫发作不具有高度特异性。Rolandic 区小棘波是否能够作为诊断癫痫和确定癫痫灶的依据,是否存在 Rolandic 区小棘波的热性惊厥、轻度胃肠炎伴良性婴幼儿惊厥和非癫痫发作的患儿今后发生癫痫的概率更高,尚待进一步的研究加以证实。

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The 3rd International Conference on Neurology and Epidemiology

The 3rd International Conference on Neurology and Epidemiology (ICNE2013) will be held in Abu Dhabi on November 21-23, 2013. The title of the Congress will be "The use of academic research and neuroepidemiology in improving neurological health". The theme of the Congress will be "Evidence-based Neurology". During the last 3 decades, research has inflected many advances and realistic hopes for patients with neurological diseases and their families. Renowned experts from all over the world were invited to deliver their latest experiences in managing neurological problems. The program of the conference is very attractive with its key talks in various fields of neurology. The Congress will feature internationally recognized invited speakers, platform lectures, oral presentations and poster sessions, and will provide an ideal platform for continuing education in all fields of experimental and non-experimental clinical neurology and epidemiology. As such, the Congress will provide an excellent opportunity for many neurologists, neurosurgeons, epidemiologists, neuropsychologists, rehabilitation specialists, geriatricians, family physicians, nurses, aged care specialists and health care providers, working in the area of neurological disorders to share their new ideas, research findings and experience. Satellite symposia on the recent developments in the fields of pharmaceutical industries will be held. There will be an exhibit for these industries where you can interact with their representatives.

Time: November 21-23, 2013

Venue: Abu Dhabi, the United Arab Emirates (UAE)

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