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神经传导测定技术对腕管综合征病情评估的价值*

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摘要 目的:近年来腕管综合征发病率逐年升高,然而其慢性、隐匿性不易引起人们的重视,发现时往往已造成较大的危害。本文探讨腕管综合征的神经传导测定对病情评估的临床价值,旨在为患者腕管综合征早期发现和后续治疗提供进一步的临床参考依据。**方法:**选取我院 124 例确诊的腕管综合征患者。其中无大鱼际肌萎缩者有 64 例,并选取平均年龄相近的 64 例正常人作为对照(组 A);有大鱼际肌萎缩者 60 例,并选取平均年龄相近的 60 例正常人作为对照(组 B)。A、B 组均经行神经电图检查,握力测定和两点辨别觉测定,分析神经传导速度改变与感觉、运动功能减退程度的关系。**结果:**A、B 两组患者均有不同程度的神经传导改变:在 A 组患者神经传导改变中,运动和感觉传导速度(MCV 和 SCV)轻度下降,运动和感觉电位波幅(CMAP 和 SNAP)轻度下降,潜伏期(ML)轻度延长;在 B 组患者神经传导中,运动和感觉传导速度(MCV 和 SCV)明显下降,运动和感觉电位波幅(CMAP 和 SNAP)明显下降,潜伏期明显延长。**结论:**腕管综合征患者不同的临床表现有不同程度的神经电图表现,因此神经电图对神经传导的测定结果对腕管综合征患者的病情有良好的评估价值,值得临床推广。

关键词:神经电图;腕管综合征;病情评估

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Value of Nerve Conduction Measurement for the Assessment of Carpal Tunnel Syndrome*

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ABSTRACT Objective: The incidence of carpal tunnel syndrome is increasing in recent years, but it is chronic and secretive, so the carpal tunnel syndrome is hard to cause the attention of people. carpal tunnel syndrome also tends to have larger damage when found. This article is to discuss the clinical value of nerve conduction measurement technology for the carpal tunnel syndrome, and to provide further clinical data for the early detection of carpal tunnel syndrome and the follow-up treatment. **Methods:** 124 patients with carpal tunnel syndrome who were diagnosed in our hospital were selected and divided into two groups (group A and group B). Group A: 64 cases of the patients with no big thenar muscle atrophy, select 64 cases of normal people who have the same average age as control; Group B: 60 cases of the patients have big thenar muscle atrophy, select 60 cases of normal people who have the same average age as control. All the patients were detected by the nervous electrical diagram, grip strength and the sense of two-point discrimination to analyze the relationships of the nerve conduction velocity, the sensory and the motor functions. **Results:** The two groups have varying degrees of nerve conduction. For the nerve conduction of group A: The motor conduction velocity and sensory conduction velocity have mild decline, the compound muscle action potential amplitude and sensory nerve action potential amplitude have mild decline, and the incubation period extended slightly; For the nerve conduction of group B: The motor conduction velocity and sensory conduction velocity have dramatic decline, the compound muscle action potential amplitude and sensory nerve action potential amplitude have dramatic decline, and the incubation period extended dramatically. **Conclusion:** Patients who have different clinical manifestations also have different degrees of neural electrical performance. Nervous electrical diagram for the nerve conduction measurement have a great assessment value for the patients with carpal tunnel syndrome, it is worthy of clinical promotion.

Key words: Nervous electrical diagram; Carpal tunnel syndrome; Disease assessment

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前言

腕管综合征(carpal tunnel syndrome)通常是指正中神经在腕管内受压从而引起以正中神经支配的区域感觉和运动功能障碍为主的一系列症状和体征^[1,2]。本综合征易发生在中年女性,双侧发病者不在少数,但多为单侧优势手发病,且和人群的腕部运动频率密切相关。任何使腕管内压力增高的因素,如外来物压迫、管腔内囊肿或肿瘤、腕部骨折断端压迫,都可导致本病的发生。本病发展过程较长,病情轻重不一,易与颈椎病的神经根型等其他疾病相混淆,患者的病情早期评估和之后的治疗和预后都依赖于准确的诊断^[3,4]。近年来,神经电图对于周围神经的损伤诊断有极高价值,也常用于腕管综合征的诊断^[5]。由于优势手更容易发病^[6,7],故本文选取近年来我院收治的右手手腕腕管综合征患者 124 例,回顾分析其神经电图测定的神经传导结果与病情严重程度的关系,总结如下:

1 资料及方法

1.1 临床资料

我院自 2011 年 5 月至 2013 年 7 月之间共收治确诊的右手手腕腕管综合征患者 124 例。其中男性病人 30 例,平均年龄 36 ± 4.8 岁;女性病人 94 例,平均年龄 45 ± 7.2 岁。几乎所有病人(118 例)出现腕管综合征的典型症状:即正中神经支配的拇指、食指、中指有麻木、疼痛的感觉,开始为间歇性,之后逐渐演变为持续性,用一系列方法如甩手、局部按摩时,局部症状可以明显缓解,但之后反复性发作;查体有大鱼际肌不同程度萎缩者 60 例,Tinel 征阳性者 39 例,Phalen 试验阳性者 28 例。患者往往由于自己对症状的主观感觉不一和其它某些原因如天气、心情的影响,患者主诉的严重程度与病情轻重之间的关系往往无规律可循^[8,9]。

无大鱼际肌萎缩者 64 例,选取平均年龄相近的 64 例正常人作为对照(组 A);有大鱼际肌萎缩者 60 例,选取平均年龄相近的 60 例正常人作为对照(组 B)。对两组患者分别进行神经传导速度检测,右手握力检测,右手拇指指腹两点辨别觉检测。平均年龄相近是为了便于比较运动水平(握力)和感觉水平(两

点辨别觉),尽量减少误差,更好地判断病情严重程度。

1.2 方法

1.2.1 神经电图对神经传导速度的检测 采用肌电/诱发电位仪^[10]对 A、B 组进行神经电图的测定。运动神经传导的测定:刺激正中神经经过肘部的部分,在神经远端支配的第一蚓状肌上放下表面电极,给予刺激后,记录正中神经的运动传导速度(MCV)、潜伏期(ML)和复合肌肉动作电位波幅(CMAP);感觉神经的传导测定:刺激中指的正中神经支配区,腕部放置表面电极,测定正中神经的感觉神经传导速度(SCV)、潜伏期(ML)、感觉神经动作电位波幅(SNAP)。A、B 两组的患者分别测定其左右手,正常人测定右手。

1.2.2 握力的检测 由于各组患者年龄不同,性别不同,身体健康状况不同,故握力值本身并无比较的意义。故 A、B 组患者握力判断指标为:将每一组正常人测得的握力平均水平作为参考值,每组患者用握力器分别测定 3 次握力取平均值,每次测得的握力值的平均值与参考值的比值百分数作为握力判断的指标。

1.2.3 两点辨别觉的测定 以钝角分规轻轻刺激食指指腹的两个点,检测患者的两点辨别能力,逐渐缩小直至测量到能够辨别的最小间距为止,正常人一般指腹的两点辨别觉为 2.0 mm 左右。两点辨别觉个人差异较大,与主观感觉有关,故采用患者左手和右手对比的方式进行感觉功能的判定^[11]。

1.3 统计学方法

采用 SPSS 13.0 统计学软件进行统计学分析,所有计数资料均行 χ^2 检验,以 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 A 组正中神经传导速度测定

A 组中患者的优势手运动神经传导和感觉神经传导均出现异常:MCV 为 50 ± 8 m/s,有轻度下降;CMAP 为 11.5 ± 5.3 mV,SNAP 为 14.8 ± 2.9 mV,幅度有轻度下降;感觉和运动神经的传导潜伏期分别为 3.4 ± 0.5 ms 和 4.8 ± 1.3 ms,有不同程度的轻度延长,具体情况见表 1:

Table 1 Median nerve conduction velocity measurement of group A

Group A	Motor conduction velocity			Sensory conduction velocity		
	MCV(m/s)	ML(ms)	CMAP(mV)	SCV(m/s)	ML(ms)	SNAP(mV)
Right hands of Patients	50 ± 8	4.8 ± 1.3	11.5 ± 5.3	43 ± 5	3.4 ± 0.5	14.8 ± 2.9
Left hands of Patients	59 ± 5	3.0 ± 1.2	17.1 ± 5.6	59 ± 9	2.1 ± 0.3	24.1 ± 3.8
Right hands of normal people	60 ± 7	2.9 ± 0.8	18.4 ± 6.6	54 ± 8	2.3 ± 0.2	22.5 ± 3.4

Note:right hands of patients compared with left hands of patients, $P < 0.05$; right hands of patients compared with right hands of normal people, $P < 0.05$.

2.2 B 组正中神经传导速度测定

B 组患者的运动神经传导和感觉神经传导均出现异常,且异常表现重于 A 组患者:MCV 为 42 ± 5 m/s,有明显下降;

CMAP 为 6.4 ± 3.4 mV,SNAP 为 8.8 ± 2.7 mV,幅度有明显下降;感觉和运动神经的传导潜伏期分别为 7.1 ± 1.4 ms 和 6.8 ± 1.3 ms,有明显延长,具体情况见表 2:

Table 2 Median nerve conduction velocity measurement of group B

Group B	Motor conduction velocity			Sensory conduction velocity		
	MCV(m/s)	ML(ms)	CMAP(mV)	SCV(m/s)	ML(ms)	SNAP(mV)
Right hands of patients	42± 5	7.1± 1.4	6.4± 3.4	18± 4	6.8± 1.3	8.8± 2.7
Left hands of patients	58± 4	3.1± 0.9	19.6± 5.0	56± 5	2.2± 0.7	23.6± 2.9
Right hands of normal people	62± 7	3.4± 1.2	18.7± 3.6	57± 7	1.9± 0.5	25.0± 3.1

Note: Right hands of patients compared with left hands of patients, $P<0.05$; Right hands of patients compared with right hands of normal people, $P<0.05$.

2.3 A、B 两组患者的握力测定情况

A 组患者右手握力 3 次测定分别为 (%) : 68.0 ± 11.2 、 71.2 ± 10.9 、 69.9 ± 13.5 , 相对于常人有轻度下降; 而左手握力 3 次测定分别为 (%) : 97.3 ± 17.2 、 98.1 ± 18.3 、 101.2 ± 16.9 , 握力

正常; B 组患者右手握力 3 次测定分别为 (%) : 27 ± 8.6 、 30 ± 6.7 、 24 ± 5.0 , 相对常人有明显下降, 左手握力 3 次测定分别为 (%) : 99.4 ± 15.1 、 102.3 ± 18.7 、 100.3 ± 16.9 , 握力正常。具体情况见表 3:

Table 3 Situation of grip strength inspection of patients in the two groups(%)

Times of examination	Group A		Group B	
	Right hands	Left hands	Right hands	Left hands
First time	68.0 ± 11.2	97.3 ± 17.2	27 ± 8.6	99.4 ± 15.1
Second time	71.2 ± 10.9	98.1 ± 18.3	30 ± 6.7	102.3 ± 18.7
Third time	69.9 ± 13.5	101.2 ± 16.9	24 ± 5.0	100.3 ± 16.9

2.4 A、B 两组患者两点辨别觉测定情况

患病手(右手)与正常手(左手)比较, 两点辨别觉有降低,

B 组比 A 组更加明显, 具体情况见表 4:

Table 4 sense of two-point discrimination of the two groups(mm)

Groups	Right hands	Left hands
Patients of group A	4.4 ± 0.76	2.1 ± 0.37
Patients of group B	6.1 ± 1.13	2.4 ± 0.22

3 讨论

腕管的解剖结构较为复杂, 而正中神经又位于腕管结构的表浅部位, 所以正中神经极易受到压迫和损伤, 从而导致正中神经的支配区域运动功能和感觉功能障碍^[12-13]。特别是当今电脑的普及, 使得腕管综合征原来的发病人群向着年轻化转变, 病程发展缓慢, 往往不能很好的引起人们的重视, 直到后期发生鱼际肌的萎缩甚至支配区域的皮肤坏死溃疡形成时, 才引起重视, 此时随经过手术治疗, 预后往往不尽如人意, 所以早期发现病情并对其严重程度进行评估是十分有价值的。

近年来对神经传导和神经生理方面的研究取得了突破性的进展, 从而使得周围神经损伤的早期确定诊断成为可能^[14,15]。神经电图对于腕管综合征的正中神经损伤的传导检查有着不可替代的作用: 本文应用神经电图对不同程度的腕管综合征患者进行了神经传导速度的检测, 发现患者右手与患者左手和正常人右手的神经传导存在差异, 且 $P<0.05$, 具有统计学意义, 神经损伤后, 表现为运动和感觉传导速度的下降, 动作电位幅度的降低, 运动和感觉潜伏期的延长。病情严重程度以握力(运动能力)和两点之间的辨别觉(感觉功能)来进行判断, 结果与神经电图的检查结果一致, 亦即神经传导数据的改变幅度越大者, 其感觉功能和运动功能也相应地下降明显^[16,17]。因此我们认

为, 神经电图对于腕管综合征的病情判断有很好的价值, 对于患者早期病情的严重程度判定和治疗方案(保守或者手术治疗)有良好的指导效果^[18]。

神经电图对神经传导的测定价值不言而喻。然而任何方法都存在一定的缺陷, 神经电图在某些条件下是有创伤性的, 例如当患者鱼际肌严重萎缩时, 则需要将针电极插入患者肌肉中以获得准确数据, 造成一定的痛苦; 从本院收治的腕管综合征患者来看, 其诊断准确率也不能达到 100%, 可能是由于此检查方法难以与正中神经其它部位的损伤相鉴别, 技术人员还不能完全熟练应用此项技术所致^[19-20]。所以, 如何改进此项技术或者探究新的腕管综合征的诊断方法, 是下一步我们要研究的问题。

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