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·技术方法·

一种经头静脉穿刺置入起搏器电极导线的新方法

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[摘要] **目的**:介绍一种经头静脉穿刺置入起搏器电极导线的新方法。**方法**:对25例需安装双腔或三腔永久人工心脏起搏器的患者进行研究。分离、穿刺头静脉成功后置入导引钢丝,经钢丝置入直鞘管,直鞘管内再置入1～2根导引钢丝,撤出直鞘管,分别经各个导引钢丝置入2～3个可撕开鞘管并插入起搏电极导线。**结果**:22例成功置入2或3个可撕开鞘管并插入电极导线,无血肿、血/气胸、误穿锁骨下动脉等血管并发症发生,3例未能分离出头静脉,改为穿刺锁骨下静脉后置入电极成功。**结论**:新的穿刺方法及电极导线置入方法避免了常规穿刺锁骨下静脉各种相对严重的并发症;较常规头静脉切开、电极导线同时置入头静脉的方法,新方法使电极导线在各自鞘内操作更加准确、容易。但部分患者分离头静脉存在困难。

[关键词] 头静脉;静脉切开术;心脏起搏器,人工;导线
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A new method for implanting pacemaker lead by puncturing cephalic vein

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[**ABSTRACT**] **Objective**: To introduce a new method for implanting pacemaker leads by puncturing the cephalic vein. **Methods**: Twenty-five patients who needed implantation of dual-chamber pacemakers or cardiac resynchronization therapy (CRT) were included in the present study. A guide wire and an introducer sheath were inserted successively after puncturing the cephalic vein. Another 1 or 2 guide wires were inserted into the introducer sheath and the introducer sheath was drawn back. Then 2 or 3 peel-away introducer sheaths were separately inserted *via* each guide wire, and the pacemaker leads were inserted into blood vessels and advanced into the heart. **Results**: Two or 3 peel-away introducer sheaths were successfully inserted into the blood vessels in 22 of the 25 patients, with no complications such as hematoma, pneumothorax, or subclavian artery puncture. We failed to isolate the cephalic veins in the other 3 patients and the patients were successfully converted to subclavian vein puncture. **Conclusion**: Our new method avoids the severe complications of traditional subclavian puncture. Compared with cephalic veins incision, our new method makes it easier and accurate for the pacemaker leads manipulation. But the cephalic veins are sometimes difficult to isolate.

[**KEY WORDS**] cephalic vein; phlebotomy; pacemaker, artifilial; leads
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永久人工心脏起搏器电极导线的置入通常采用穿刺锁骨下静脉和(或)切开头静脉的方法。相对其他部位的静脉穿刺,穿刺锁骨下静脉时一旦发生并发症常较严重,如处理不及时,可危及生命。而切开头静脉,同时在头静脉置入两根或多根电极导线后,电极导线之间相互贴靠,导致操作空间狭小,相互影响,给电极导线的放置到位带来一定的困难,临床上尚无满意的解决方法。本文介绍的方法结合了头静脉径路的安全性和静脉穿刺的简便性,解决上述问题。

1 资料和方法

1.1 *病例资料* 自2005年12月至2006年8月,共对25例需置入永久人工心脏起搏器的患者进行研究。其中普通双腔(右心耳、右室心尖部)起搏器21例,三腔(右心耳、右室心尖部、左室)起搏器4例。男性14例,女性11例。年龄49～84(66.5±17.5)岁。15例病态窦房结综合征、6例Ⅲ度房室传导阻滞患者行双腔起搏治疗。4例完全性左束支传导阻滞、心功能Ⅲ级患者行三腔双心室再同步治疗。

1.2 *电极导线置入方法* 常规消毒、铺巾左颈肩部。于左三角肌和胸大肌之间肌间沟切开皮肤,分离皮下组织,钝性分离脂肪垫显露头静脉。以4 F穿刺针穿刺头静脉成功后,引入导引钢丝,X线下证实进入下腔静脉后经钢丝置入直鞘管。经直鞘管再引入1～2根导引钢丝(图1),撤出直鞘管。再经各导引钢丝分别置入2～3个可撕开鞘管,分别经各可撕开鞘管引入电极导线。电极导线放置到位,测得满意起搏阈值、感知度及心腔内电图后撕除鞘管,固定电极导线,与脉冲发生器连接后埋置于囊袋。

2 结 果

25例患者中22例成功置入2～3根电极导线。无血肿、

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血/气胸、误穿锁骨下动脉等血管并发症发生。3 例未能分离出头静脉,改为穿刺锁骨下静脉后成功置入电极。

图 1　经直鞘管内插入多根导引钢丝

Fig 1　Three guide wires were inserted into the introducer sheath

分别于术后 1、3 个月随访,手术切口局部愈合良好,胸部平片检查见电极导线、起搏器在位,起搏器起搏、感知功能良好。

3　讨　论

经头静脉置入起搏器电极导线的手术径路,因头静脉体表解剖投影位置恒定,位置深且局部较固定,电极不易因肢体活动牵拉而脱位等优点而成为临床应用最广泛的手术径路。传统采用头静脉切开的方法在暴露、切开头静脉后,直接经切口处插入 1～3 根电极导线。随后操作电极导线末端及塑形钢丝,将电极头端置入满意位置。上述操作中易出现的问题有:(1)切开头静脉时常致血管痉挛,使撑开切口困难;(2)头静脉内径大小解剖变异大,多数可容插入 1～2 根电极导线,同时插入 3 根电极导线常较困难,个别仅能插入 1 根电极导线,常导致头静脉切开同时需锁骨下静脉穿刺,增加了手术的难度和时间;(3)多根电极导线同时容纳于头静脉内,因相互紧密贴靠,操作时难免相互摩擦,产生位移,对电极导线头端的固定不利。本文所介绍的头静脉穿刺法克服了传统操作方法的缺陷。首先,穿刺头静脉后,穿刺针及随后的导引钢丝完全支撑血管管腔,克服了血管痉挛带来的困难;其次,多根导引钢丝置入头静脉后,实质上通过头静脉一支血管通路建立了进入锁骨下静脉的多个通道,此时头静脉内径的大小不再重要;另外,多个鞘管保证了电极导线在各自的鞘管内操作,互不贴靠、摩擦,电极头端固定后不再受其他导线操作的影响。

自 Littleford 等[1]倡导锁骨下静脉穿刺技术以来,使得电极导线的置入简单化,手术时间较采用切开头静脉方法缩短。但锁骨下静脉穿刺的并发症较多,如血胸、气胸、误穿锁骨下动脉、锁骨下动静脉瘘、神经损伤、空气栓塞等,远期可发生电极导线折断[2]。虽然文献报道总体发生率较低,为 1%～3%[3-5],但一旦发生后常较严重,甚至危及生命。传统方法依靠观察回抽血液的颜色、压力及导引钢丝走行的影像学来判断是否进入锁骨下静脉。而经头静脉穿刺置入的导引钢丝则可肯定进入锁骨下静脉,不存在非直视下穿刺的盲目性和避免了传统方法的判断失误,使得电极导线置入的安全性进一步提高。但部分患者的头静脉解剖变异较大,存在血管畸形、缺如、严重扭曲或狭窄等[6],在探查头静脉的过程中组织损伤大,出血量较多等因素一定程度增加了手术难度和手术时间。

综上所述,经头静脉穿刺置入起搏器电极导线的方法较传统的锁骨下穿刺和头静脉切开方法,更具安全性,使得操作更加准确、容易,值得临床推广。

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