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个案与短篇

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连续动脉穿刺测压致桡、尺动脉严重痉挛2例

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[关键词] 动脉穿刺;尺动脉;桡动脉;痉挛
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桡动脉穿刺测压已广泛应用于各类危重、大手术及术中血流动力学波动大、需要血液稀释、控制性降压的患者[1]。连续监测动脉血压既可保证测压的准确性和即时性,又可及时调整各种血管活性药物的使用。我院自2000年至今,术中行连续桡动脉穿刺测压14 000余例,偶有导管阻塞、管道脱出及出血致肢体肿胀等并发症发生,发生率0.01%。近期我院收治因动脉穿刺测压导致桡、尺动脉严重痉挛患者2例,现报告如下。

1 临床资料

病例1:患者,女性,75岁,体质量62 kg。因胆囊结石伴急性胆囊炎在全麻下行经腹腔镜胆囊切除术。患者自诉无高血压病史,入室测NBP 150/80 mmHg,心率78/min,左手食指SpO_2 96%。Allen试验阴性,行左侧桡动脉穿刺测压ABP 180/86 mmHg。麻醉诱导给予芬太尼0.1 mg,依托咪酯10 mg,万可松5 mg,行气管插管,用瑞芬太尼0.3μg/(kg·min),异丙酚3 mg/(kg·h)持续泵入维持麻醉。手术开始20 min时突然发现SpO_2数值、波形消失,此时ABP 150/70 mmHg。检查SpO_2探头与指端连接良好,观察左手掌及手指颜色略发紫,触摸发凉,考虑桡、尺动脉痉挛,立即经桡动脉测压连接管分2次注入1%利多卡因共100 mg,并局部热敷,同时检查右手及双足均未见异常。5 min后,患者手掌颜色逐渐变红,SpO_2显示100%,波形规则。患者清醒拔管后,拔出动脉穿刺套管针,按压10 min后止血良好,将患者安全送回病房。随访3 d,患者左手血液循环良好,术后10 d安全出院。

病例2:患者,女性,70岁,体质量60 kg。因急性阑尾炎并发感染性休克急诊在全麻下行剖腹探查、阑尾切除术。患者入手术室时意识淡漠,血压80/50 mmHg,心率122/min,脉搏血氧饱和度96%。给予快速补液,静脉推注多巴胺3 mg,后立即行左侧桡动脉穿刺(Allen试验阴性),测得有创动脉血压(ABP)为130/58 mmHg、心率118/min、麻醉诱导给予依托咪酯8 mg、芬太尼0.1 mg、卡肌宁10 mg,行气管插管并确认插管位置无误后开始手术。麻醉维持用瑞芬太尼0.05 μg/(kg·min)、异丙酚3 ml/(kg·h)泵入。术中清理脓液时ABP由110/55 mmHg逐渐降低,最低时78/35 mmHg期间分2次静注多巴胺共5 mg,快速胶体输注500 ml,血压上升至120/58 mmHg,心率120/min。遂抽血查动脉血气。此时发现左手拇指及指根部苍白,随后手腕以下及其余四指背侧、掌侧皮肤逐渐变得苍白,脉搏血氧饱和度测不到,即刻从桡动脉测压管给予1%利多卡因100 mg,分3次静注,局部给予热敷,15 min后左手颜色由桡侧至尺侧逐渐变红,脉搏血氧饱和度100%。观察右手及双足末梢循环未发现异常。术中经扩容、抗休克治疗,循环稳定,有创动脉血压维持在118/58 mmHg左右、心率100/min左右。手术顺利,手术时间90 min,输液2 000 ml,出血100 ml,

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转移,并降低线粒体的膜电位,上述两种改变将引起线粒体内细胞色素C的释放,并由此活化凋亡途径下游的caspase-3等蛋白酶类,最终引起细胞凋亡[8]。我们推测,DFMO诱导Jurkat细胞发生凋亡的能力,可能是其抑制Jurkat生长的基础之一。作为多胺合成途径的抑制剂,DFMO是否对多胺降解代谢有直接或间接的影响,目前研究较少。SMO和APAO是多胺降解代谢必需的酶,它们在氧化底物多胺的过程中,产生的H_2O_2是活性氧的成分之一[9-11],而活性氧本身具有激发细胞凋亡的功能。本研究发现,DFMO在抑制ODC的同时,对SMO活性具有明显上调作用,其机制有待进一步研究。SMO活性的增加在协同消耗肿瘤细胞快速生长需要的多胺的同时,产生的局部高H_2O_2含量亦有助于激发细胞凋亡。上述研究结果提示,ODC抑制剂DFMO对人T淋巴瘤Jurkat细胞具有生长抑制和诱导凋亡的作用,对治疗人白血病具有潜在的应用价值。

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腹腔引流200 ml液体,术后2 h拔除气管导管,随访1周,生命体征平稳,左手末梢循环好,术后12 d安全出院。

2 讨论

动脉重度痉挛是桡动脉穿刺测压的严重并发症,如发现不及时或处理不正确均会导致肢体远端缺血坏死、截肢(趾)等不良后果。一般情况下,由于尺动脉与桡动脉在手掌所形成掌深弓和掌浅弓存在,即使桡动脉重度痉挛也不会导致肢体远端的缺血坏死[2]。但存在一定诱因时,如栓子的脱落、炎性因子等刺激均会导致整个外周血管痉挛与收缩,如果不及时处理则有可能导致肢体坏死。

桡动脉痉挛呈过程性发展,首先自指端开始,而后向指根部及以上部位发展,但没有超过手腕部。皮肤苍白先从拇指开始,再逐渐累及其他手指及掌侧和掌背侧皮肤。我们认为:①动脉痉挛的原因除机械刺激外与全身感染导致的末梢循环差、组织缺血、缺氧,因循环不稳定而使用一些血管活性药物均是发生小动脉广泛痉挛的重要因素。因此保持手术间适宜的温度,保证微循环有效灌注,及时纠正酸碱平衡和电解质紊乱对预防因动脉穿刺所致的小动脉痉挛尤显重要。②利多卡因能阻滞交感神经的兴奋性,直接降低血管平滑肌的收缩作用,达到改善微循环的目的。一旦发现动脉痉挛,可经动脉测压管内推注少量利多卡因,必要时可重复进行。③罂粟碱或酚妥拉明可作为辅助用药,但应注意其使用剂量及浓度[3]。

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