Rev Bras Anestesiol. 2017;67(3):311–313

REVISTA BRASILEIRA DE ANESTESIOLOGIA

Publicação Oficial da Sociedade Brasileira de Anestesiologia
www.sba.com.br

CLINICAL INFORMATION

Sphenopalatine ganglion block for postdural puncture headache in ambulatory setting

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Received 7 July 2016; accepted 12 September 2016
Available online 1 October 2016

KEYWORDS
Sphenopalatine ganglion block;
Postdural puncture headache

Abstract
Background and objectives: Postdural puncture headache (PDPH) is a common complication following subarachnoid blockade and its incidence varies with the size of the needle used and the needle design. Suportive therapy is the usual initial approach. Epidural blood patch (EBP) is the gold-standard when supportive therapy fails but has significant risks associated. Sphenopalatine ganglion block (SPGB) may be a safer alternative.
Case report: We observed a 41 year-old female patient presenting with PDPH after a subarachnoid blockade a week before. We administrated 1 l of crystalloids, Dexamethasone 4 mg, parecoxib 40 mg, acetaminophen 1 g and caffeine 500 mg without significant relief after 2 hours. We performed a bilateral SPGB with a cotton-tipped applicator saturated with 0.5% Levobupivacaine under standard ASA monitoring. Symptoms relief was reported 5 minutes after the block. The patient was monitored for an hour after which she was discharged and prescribed acetaminophen 1 g and ibuprofen 400 mg every 8 hours for the following 2 days. She was contacted on the next day and again after a week reporting no pain in both situation.
Conclusions: SPGB may attenuate cerebral vasodilation induced by parasympathetic stimulation transmitted through neurons that have synapses in the sphenopalatine ganglion. This would be in agreement with the Monro-Kellie concept and would explain why caffeine and sumatriptan can have some effect in the treatment of PDPH.

Apparently, SPGB has a faster onset than EBP with better safety profile. We suggest that patients presenting with PDPH should be considered primarily for SPGB. Patients may have a rescue EBP if needed.

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http://dx.doi.org/10.1016/j.bjane.2016.09.003

PALAVRAS-CHAVE
Bloqueio do gânglio esfenopalatino;
Cefaleia pós-punção dural

Bloqueio do gânglio esfenopalatino para cefaleia pós-punção dural em contexto de ambulatório

Resumo
Justificativa e objetivos: Cefaleia pós-punção dural (CPPD) é uma complicação comum após bloqueio subaracnoideo e sua incidência varia de acordo com o tamanho e desenho da agulha utilizada. Geralmente, a terapia de apoio é a abordagem inicial. O tampão sanguíneo peridural (TSP) é o padrão de terapia quando a terapia de apoio falha, mas possui riscos significativos associados. O bloqueio do gânglio esfenopalatino (BGEP) pode ser uma alternativa mais segura.
Relato de caso: Atendemos uma paciente de 41 anos de idade, apresentando-se com CPPD após um bloqueio subaracnoideo uma semana antes. Administramos cristaloides (1 L), dexametasona (4 mg), parecoxib (40 mg), acetaminofeno (1 g) e cafeína (500 mg), sem alívio significativo após 2 horas. Realizamos um bloqueio bilateral do gânglio esfenopalatino, usando um aplicador com ponta de algodão saturada com levobupivacaína a 0,5% sob monitoração padrão ASA. O alívio dos sintomas foi relatado 5 minutos após o bloqueio. A paciente foi monitorada por uma hora e depois recebeu alta com prescrição de acetaminofeno (1 g) e ibuprofeno (400 mg) a cada 8 horas para os dois dias seguintes. A paciente foi contatada no dia seguinte e novamente após uma semana e, em ambos os contatos, relatou não sentir dor.
Conclusões: O BGEP pode ter atenuado a vasodilatação cerebral induzida pelo estímulo parassimpático transmitido através dos neurônios que possuem sinapses no gânglio esfenopalatino. Esse mecanismo estaria de acordo com o conceito de Monro-Kellie e explicaria porque a cafeína e o sumatriptano podem ter algum efeito no tratamento da CPPD.
Aparentemente, o BGEP tem um início mais rápido que o do TSP, com um melhor perfil de segurança. Sugerimos que os pacientes que se apresentam com CPPD devam ser considerados primeiro para BGEP. Os pacientes podem ser submetidos a um TSP de resgate, caso necessário.

Background and objectives

Postdural Puncture Headache is a common complication following subarachnoid blockade. Its incidence varies greatly according to the used needle size and the needle design. It usually presents as an intense frontal and occipital headache but other areas may also be affected.[1] The pain is exacerbated by upright position and is relieved by lying down, which is a hallmark.[2] Other symptoms have also been reported including nausea and vomiting, vertigo, hearing loss and even visual disturbances. Despite approximately 90% of PDPH happening in the first 3 days after a dural puncture, its onset may be delayed for almost 2 weeks.[1]

The Quincke needle is one of the most used spinal needles worldwide and it has a sharp and cutting tip. The incidence of PDPH using Quincke needles may vary from 0.4% up to 36% depending of its size. Pencil-point needles may have lower incidence of PDHP.[1] Rehydration, non-steroidal anti-inflammatory drugs, acetaminophen, low dose corticoids, caffeine and even sumatriptan are all part of supportive therapy which may obviate the need for more aggressive therapy despite incomplete relief.[3]

The EBP is currently the standard of care after failure of pharmacological therapies but it is not devoided of significant risks (meningitis, seizures, motor and sensory deficits, etc.).[4] Some reports of transnasal SPGB have been emerging for the treatment of PDPH.[5]

Case report

We observed a 41 year-old female patient presenting with PDPH after a subarachnoid blockade with a 27 gauge Quincke needle for a tension-free vaginal tape obturator a week before. The intense holocraneane headache had started at the night of surgery and it was aggravated by the upright position with relief by lying down. The patient also referred nausea and vomiting for the last week. No neck stiffness was found. We proposed a brain Computed Tomography (CT) scan which our patient refused due to having an infant at home from whom she did not feel comfortable being separated.

We administrated 1 l of crystalloids, Dexamethasone 4 mg, parecoxib 40 mg, acetaminophen 1 g and caffeine 500 mg without significant relieve after 2 h. After discussing with the patient and gathering her consent, we performed a bilateral SPGB with two cotton-tipped applicators soaked with 0.5% Levobupivacaine, without adjuncts nor vasoconstrictors, under standard ASA monitoring. The cotton-tipped applicators (one for each nostril) were introduced parallel to the nose floor and advanced until resistance was felt. This represents contact with the posterior nasopharynx wall. Each cotton-tipped applicator was left in place for approximately 5 min. Symptoms relief was reported 5 min after the cotton-tipped applicators were withdrawn. The patient was monitored for an hour after which she was discharged and prescribed acetaminophen 1 g and ibuprofen 400 mg every

8 h for the following 2 days. She was contacted the next day and again after a week reporting no pain in both situation.

Conclusions

Despite PDPH being usually a clear diagnosis from the history of a dural puncture and the clinical findings, other diagnosis must be considered ranging from migraine to meningitis, intracranial haemorrhage, central venous thrombosis or cerebral tumor.[1] There was no previous history of migraine. The onset and lack of progression of neurological symptoms played against meningitis and intracranial haemorrhage would likely present with more dramatic features. We proposed a brain CT-scan to exclude for other causes but our patient refused it.

The Monro-Kellie concept states that the intracranial volume must remain fixed. Therefore, if there is a cerebrospinal fluid leakage due to a dural puncture, the other intracranial constituents (blood and brain tissue) would have to increase its volume so that the intracranial pressure and the cerebral perfusion pressure would remain in the normal range. Since the brain tissue is a solid constituent with low capacity to expand its volume in an acute fashion, the remaining possibility is for the intracranial blood volume to increase, secondary to vasodilation.[1]

An hypothesis is that SPGB may attenuated cerebral vasodilation induced by parasympathetic stimulation transmitted through neurons that have synapses in the sphenopalatine ganglion. This would be in agreement with the Monro-Kellie concept and would also explain why caffeine and sumatriptan can have some effect in the treatment of PDPH.

Regarding what was already described elsewhere,[4,5] SPGB has apparently a faster onset than EBP with better safety profile. Despite obvious contraindication in patients with basilar skull fractures, we can argue that SPGB can walk through the many contraindications for an EPD. Also, by being a non-invasive technique, little worries must be given in the case of pyrexia, hyperleukemia or know infection anywhere else than the nasopharynx.

We suggest that patients presenting with PDPH should be considered primarily for SPGB, due to safety of the procedure. Patients may have a rescue EBP if needed.

Conflicts of interest

The authors declare no conflicts of interest.

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