

Local anaesthetic block therapy of posttraumatic neuralgia of the infraorbital nerve

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SUMMARY

The pathogenesis, as well as the results of treatment in 12 patients with neuralgia of the infraorbital nerve are discussed. Patients were treated by means of local anaesthetic nerve blocks, or when this was unsuccessful, by transcutaneous nerve stimulation and or tricyclic antidepressive drugs. In this way, the results were good in previously untreated patients, while they were moderate in patients in whom an attempt to treat with surgery had been carried out earlier. We recommend the use of local anaesthetic nerve blocks as treatment of the first choice.

INTRODUCTION

Damage of the infraorbital nerve after paranasal sinus surgery via the transantral route is both for the patient - because it is painful and often longlasting - and for the surgeon - because it is iatrogenic - an awkward complication. Although it is probably relatively rare, it remains unclear how often it occurs exactly (Murray, 1983). Good surgical technique will protect against this complication, but damage cannot always be prevented.

Since the introduction of endoscopic sinus surgery, sinus surgery via the transantral route is much less carried out. The indications for the transantral route, however, will not disappear completely.

In this paper, we will report on 12 patients with damage of the infraorbital nerve who were treated at our department. We will discuss the pathogenesis of neuralgia of the infraorbital nerve, and our treatment experiences in these patients.

PATIENTS AND METHODS

Twelve patients (25-67 years, mean 44.6 years), five male and seven female, with chronic neuralgic pain in the infraorbital region were studied. Eight patients had undergone one or more surgical procedures for chronic recurrent maxillary sinusitis. After surgery, the pain in the infraorbital region did not disappear or worsened. In five patients, reoperation was performed and in two cases a trans-

section of the infraorbital nerve was performed. Another patient was treated with cryocoagulation. In most patients the pain did not change, while it became more severe in two patients.

Two patients had had a fracture of the os zygomaticum, and two patients had a history of long-lasting chronic sinusitis without surgery. In all patients, other causes of infraorbital pain were ruled out.

When the clinical features suggested reflex sympathetic dystrophy, 3–5 local anaesthetic blocks of the stellate ganglion were performed before other treatment was started. Treatment consisted of one or more local anaesthetic nerve blocks of the infraorbital nerve. Electrical stimulation was used for locating the most sensitive site of the nerve in the infraorbital foramen. This was performed with the use of a top-XE electrode (Radionics®) and a nerve stimulator system (RFG-3B) radiofrequency lesion generator system (Radionics®). When stimulation evoked a tingling or painful sensation in the painful region, 1 ml of bupivacaine 0.25% (Marcaine®) was injected. When a temporary relief of pain was obtained, the nerve block was repeated. When no relief of pain occurred, other treatment was started. This consisted of transcutaneous electrical nerve stimulation and pharmacological treatment with tricyclic antidepressants.

RESULTS

In twelve patients, 1–11 nerve blocks (in total 57) of the infraorbital nerve were performed. In all cases a positive radiation in the painful area was reached with 0.2–0.5 volt stimulation. In two patients these nerve blocks were preceded by 3–5 stellate ganglion blocks. In 10 patients the first local anaesthetic nerve block resulted in relief of pain, the duration of which ranged from 1 day until more than one year (Table 1). In one patient (C), no relief occurred and in another patient (D) the pain worsened for some days. Both patients (C, D) had previously undergone transection or cryocoagulation of the infraorbital nerve elsewhere. Treatment with transcutaneous electrical nerve stimulation was successful in these two patients. In case a nerve block resulted in a temporary relief of pain, the block was repeated after one or more days. One patient (B) is free of pain after a single nerve block. After repeated blocks, the pain disappeared in two patients (E, G), and decreased considerably in six patients (A, F, H, I, J, L). In four of these patients (A, F, H, L) no other treatment was needed. In one patient (H), in whom a transection of the infraorbital nerve had been performed, the nerve block has been repeated monthly for more than one year, which has resulted in a slow increase of the length of the painfree period after the nerve block. Two patients (I, J) were treated by a combination of nerve block, transcutaneous electrical nerve stimulation and/or tricyclic antidepressants. Therefore, local anaesthetic nerve blocks resulted in complete disappearance of pain in three patients, and in considerable decrease of pain in six patients, although two of these latter patients

Table 1. Twelve patients with neuralgic pain in the intraorbital region treated with nerve blocks: with patient characteristics: sex, age, duration of pain in years, cause, number of nerve blocks, first effect after nerve block, final effect after nerve block, other treatment modalities and effectiveness.

					nerve blocks			other treatment	
	patient m/v	age	duration of pain in years	cause	N	first effect	final effect	S/T/P	effect
A	F	42	2	trauma	9	2 days	+	S	+
B	M	25	2	surgery	1	> 1 year	.	-	.
C	F	49	8	surgery + trans- section of nerve	1	no effect	-	T	+
D	F	49	3	surgery + cryosurgery	1	adverse effect	-	T	+
E	M	52	4	surgery	3	1 day	++	-	.
F	M	53	17	sinusitis	6	3-7 days	+	S	-
G	F	32	3	trauma	3	10 days	++	-	.
H	F	53	5	surgery + trans- section of nerve	11	4 weeks	++	-	.
I	F	25	2	surgery	2	6 days	-	P	+
J	M	28	<1	surgery	11	1 day	+	T/P	+/+
K	F	67	3	sinusitis	3	3 days	-	T	-
L	M	50	3	surgery	3	10 days	++	-	.

S = stellate ganglion block

T = transcutaneous electrical nerve stimulation

P = pharmacological treatment

needed additional treatment. In one patient, repeated nerve blocks had a short-lasting effect only, while in two patients no, or an adverse effect occurred.

DISCUSSION

Severe pain, marked cutaneous hypersensitivity and dysesthesia may result from injury of the infraorbital nerve. Oral medication, nerve blocks, transcutaneous electrical nerve stimulation, psychological techniques, physical therapy and ablative surgery are all being used in the treatment of neuralgic pain following (surgical) trauma.

Local anaesthetic nerve blocks are often performed initially as a diagnostic procedure (Hartrick and Pither, 1986). In all our cases, we commenced with using nerve blocks. In many cases such a block will provide relief of longer duration than the action of the used local anaesthetic (Hartrick and Pither, 1986). Such relief can subsequently be extended by repeating this procedure, as confirmed in our study: in 10 out of 12 patients a temporary relief of pain was obtained and in all these 10 patients the duration of pain relief outlasted the local anaesthetic working time. One patient is free of pain now for more than one year. This is probably due to a change of afferent impulses, interrupting the vicious circle of pain sensation.

In none of our patients we used thermolesions or other neurolytic techniques,

because of the disappointing results of these and other surgical interventions (Hartrick and Pither, 1986; Sekhar, 1986). Surgery can even produce more pain due to a further sensory deficit, which causes deafferentation pain, as was the case in one of our previously operated patients. In this patient only transcutaneous electrical nerve stimulation was successful. Another patient, who also underwent transection of the infraorbital nerve elsewhere, has now had repeated local anaesthetic nerve blocks every 4–6 weeks for more than one year. Wand (1985) reports good results of cryoanalgesia for painful peripheral nerve lesions. In one of our patients, however, cryocoagulation performed elsewhere, as well as a local anaesthetic nerve block at our department, resulted in a temporary increase of pain.

Transcutaneous electrical nerve stimulation is especially effective in pain due to deafferentation or imbalance in the afferent input to the central nervous system (Restelli et al., 1988). Our results with transcutaneous stimulation, when nerve blocks were unsuccessful, were indeed reasonably effective.

Medical treatment has also been suggested for neuralgic pain. In general, narcotic drugs should be avoided because of poor results and the tendency to addict to these drugs (Sekhar, 1986; Arner and Meyerson, 1988). Antidepressants may, however, be effective, as confirmed in two of our patients (Sekhar, 1986). In conclusion, it seems worthwhile to start treatment of patients with neuralgic pain in the infraorbital region, whether or not due to surgery, with repeated local anaesthetic nerve blocks. Transcutaneous electrical nerve stimulation and oral antidepressive drugs are good alternatives when repeated nerve blocks fail to induce relief of pain.

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