Outcome predictors for treatment success with 5% lidocaine medicated plaster in low back pain with neuropathic components and neuropathic pain after surgical and nonsurgical trauma

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Abstract

Five percent lidocaine medicated plaster has been proven efficacious for the symptomatic relief of neuropathic pain in diverse pain conditions which might be attributed to a common localized symptomatology in these indications, possibly with common predictors of treatment success. To discuss potential symptoms and other factors predicting response to treatment with lidocaine plaster for the indications of low back pain with neuropathic components and neuropathic pain after surgical and nonsurgical trauma, 44 pain specialists from 17 countries attended a two-day conference meeting in December 2009. Discussions were based on the retrospective analysis of case reports (sent in by participants in the four weeks prior to the meeting) and the practical experience of the participants. The results indicate some predictors for success with 5% lidocaine medicated plaster for the two indications. Localized pain, hyperalgesia and/or allodynia, and other positive sensory symptoms, such as dysesthesia, were considered positive predictors, whereas widespread pain and negative sensory symptoms were regarded as negative predictors. Paresthesia, diagnosis, and site of pain were considered to be of no predictive value. Common symptomatology with other neurologic pathologies suggests that treatment of localized neuropathic pain symptoms with the plaster can be considered across different neuropathic pain indications.

Keywords: lidocaine plaster, low back pain, surgical and nonsurgical trauma pain, neuropathic pain, case report

Background

Five percent lidocaine medicated plaster (Versatis®; Grünenthal GmbH, Aachen, Germany) is a topical analgesic which is recommended as first-line therapy for the treatment of localized, peripheral, neuropathic pain.1 Its mechanism of action is not fully known, but it is assumed to block sodium channels associated with peripheral nerve endings, thereby reducing ectopic nociceptive pain signal transmission.2 The compound
has been proven effective and well tolerated in the treatment of neuropathic pain in patients with postherpetic neuralgia\textsuperscript{3–7} and diabetic polyneuropathy.\textsuperscript{3,4,8} Although 5\% lidocaine medicated plaster is currently only licensed for the symptomatic relief of neuropathic pain associated with previous herpes zoster infection (postherpetic neuralgia), it has been successfully used in patients with other neuropathic pain states, such as painful idiopathic distal sensory polyneuropathies,\textsuperscript{9} entrapment neuropathies,\textsuperscript{10} and postoperative/post-traumatic neuropathic chronic cutaneous pain (PNCCP).\textsuperscript{11,12}

Lidocaine plaster also showed promise in the treatment of chronic low back pain. In two large uncontrolled, open-label studies including patients with moderate-to-severe low back pain, treatment with lidocaine plaster for six weeks significantly reduced the intensity of pain and pain interference with quality of life.\textsuperscript{13,14} The addition of the lidocaine plaster to the analgesic regimen in chronic low back pain was beneficial in a case series of four patients.\textsuperscript{15}

Low back pain and PNCCP frequently have complex underlying pathologies. The origin of chronic low back pain is controversially discussed. Amongst other conditions, such as inflammatory back pain,\textsuperscript{16} it is often attributed to degenerative changes in the spine which produce a syndrome of varying combinations of axial and limb pain.\textsuperscript{17} The affected spinal structures may include muscle, nerve, vertebrae, thoracolumbar fascia, ligaments, facet joints, sacroiliac joints, and discs. Spinal degeneration proceeds from stability to instability and back to stability.\textsuperscript{18} Instability is caused by disc dysfunction, tearing, or herniation and restabilization by bony overgrowth of the vertebral end plates and hypertrophy of the facets to compensate for the altered biomechanical loading.\textsuperscript{18,19} Peak incidences of lumbar and radicular pain are reached during the “instability phase”.\textsuperscript{18,20} Compensatory bone growth results in progressive central canal and foraminal stenosis, leading to neural compression and vascular symptoms.\textsuperscript{20} Both nociceptive and neuropathic pain-generating mechanisms are thought to be involved in low back pain.\textsuperscript{21} For instance, radicular pain is most commonly caused by disc herniation, but the inflammation of the affected nerve seems to be the critical pathophysiologic process.\textsuperscript{22} As in other neuropathic pain conditions, peripheral and central mechanisms are involved in the pathogenesis of (chronic) low back pain.\textsuperscript{21} The present manuscript focuses on low back pain cases considered by their treating physicians to have a definite neuropathic component.

Chronic post-traumatic pain persisting in the location of surgical intervention beyond the usual course of natural healing is common, and has been reported after different types of surgery, eg, amputation, mastectomy, cardiac surgery, hernia repair, and thoracotomy.\textsuperscript{23} It is often due to partial or complete nerve lesions and subsequent development of a focal peripheral neuropathy.\textsuperscript{11} Allodynia or hyperalgesia are frequently observed sensory phenomena if part of the nervous structure is retained (partial lesion) and “overreacts” by, eg, upregulating sodium channels.\textsuperscript{24}

The effectiveness of lidocaine plaster in such diverse neuropathic pain conditions might be attributed to a common localized symptomatology in these patients, possibly with
common predictors of treatment success. In view of the fact that generally satisfactory pain relief is experienced by ≤50% of patients in randomized clinical trials assessing efficacious neuropathic pain medications (with frequent side effects), outcome predictors for a given treatment may prove useful in order to save patients in pain from a potentially frustrating “trial and error” period and to find a successful treatment faster, and also be useful from a cost-effectiveness point of view. Two previous conference meetings of pain specialists in Athens, Greece (2007) and Berlin, Germany (2008) had focused on potential outcome predictors for the indications of diabetic polyneuropathy, complex regional pain syndrome, low back pain with neuropathic components (nLBP), and PNCCP. The results of these two meetings have not been published. At those meetings, localized hyperalgesia, allodynia, and a combination of positive and negative symptoms were seen as positive predictors for treatment success with lidocaine plaster in PNCCP, whereas deep pain, numbness, and cold allodynia were discussed as potential negative predictors in such conditions. For low back pain, the specialists summarized their experiences of successful treatment with lidocaine plaster as follows: “For localized myofascial pain with tenderness to touch, with or without positive signs like alldynia and hyperalgesia, excluding radiating and radicular pain and with a neuropathic component”. It was, however, generally agreed that further discussions and a definition of predictors for the two indications nLBP and PNCCP on the basis of case reports was warranted. For this purpose, case reports were collected and analyzed at an additional two-day meeting in Vienna, Austria in December 2009. The main results of this meeting are presented in this paper.

Meeting details

Pain practitioners experienced in the treatment of nLBP or PNCCP with 5% lidocaine medicated plaster were invited to a two-day meeting facilitated by Grünenthal GmbH to discuss potential symptoms and other baseline factors predicting response to treatment with lidocaine plaster. The discussions were based on the retrospective analysis of case reports and the practical experience of the participants. Forty-four pain specialists from 17 countries participated in this meeting. Two discussion groups for each clinical indication were formed, each moderated by one of the four authors of this paper.

Four weeks prior to the meeting, all participants were asked to contribute case reports for nLBP and/or PNCCP. Predictors of treatment success of lidocaine plaster for nLBP and PNCCP The time frame was felt appropriate for the retrospective collection of data but was insufficient for starting treatment de novo in view of the request (which was not permitted). Practitioners provided information about their cases using a standardized form documenting the following:

- Demographic data
- Primary diagnosis (pain indication/cause of pain)
- Other relevant diagnoses
- Localization of pain symptoms
- Duration and intensity of pain prior to initiation of treatment with lidocaine plaster
- Physical examination and diagnostic tests
- Presence of clinical symptoms of pain (hyperalgesia, severity of allodynia, stabbing pain, burning pain, shooting pain, other symptoms)
- Prior and concomitant medication
- Start of therapy with lidocaine plaster
- Application frequency, number of plasters and duration of treatment
- Clinical Global Impression of Change (CGIC) score during treatment with lidocaine plaster (from 1 “very much improved” to 6 “very much worse”)
- Occurrence of adverse events
- Conclusions of the practitioner

The presence of hyperalgesia (increased pain sensitivity in response to nociceptive stimuli) and allodynia (pain response to nonnociceptive stimuli) was confirmed by the treating physician using diagnostic tools of his/her choice. Practitioners rated the severity of allodynia on a scale from 0 = no pain or discomfort to touch, 1 = uncomfortable, but tolerable to touch, 2 = painful, to 3 = extremely painful, patient cannot stand touching.

Twenty-four pain practitioners from Austria (n = 1), Belgium (4), Croatia (1), France (1), Germany (2), Poland (3), Portugal (3), Russia (1), Slovenia (1), Spain (2), United Kingdom (4), and Venezuela (1) submitted a total of 89 case reports. All reports were tabulated according to indication and displayed during the discussion sessions. The original report forms were also available for perusal at each session. In 17 cases, both etiologies were present; these cases were discussed for both indications. All cases were reviewed jointly by the group participants and provided a basis for the first discussions in the four groups. From this starting point, the discussions moved on to an exchange of experience between the specialists regarding outcome predictors. Final conclusions were drawn collectively after the group discussions.

Chronic low back pain with neuropathic components

The two groups reviewed 41 cases of chronic low back pain with neuropathic components. Table 1 summarizes these cases across different etiologies and lists them sorted by degree of improvement (CGIC score). The 17 cases where both etiologies were present (nLBP and PNCCP) are tabulated in Table 2, but baseline data were included in calculations for both nLBP and PNCCP.
Table 1
Case reports for neuropathic low back pain

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Primary localization (site of pain)</th>
<th>Localization of pain symptoms</th>
<th>Duration of pain in years</th>
<th>Hyperalgesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>50</td>
<td>Neuropathy pain, sciatica</td>
<td>Lumbar back</td>
<td>2.0</td>
<td>X</td>
</tr>
<tr>
<td>F</td>
<td>85</td>
<td>Lumbar pain</td>
<td>Lumbar back</td>
<td>11.0</td>
<td>X</td>
</tr>
<tr>
<td>F</td>
<td>29</td>
<td>Degenerative disease</td>
<td>Lumbar back</td>
<td>0.0</td>
<td>X</td>
</tr>
<tr>
<td>F</td>
<td>76</td>
<td>Low back pain, sciatica</td>
<td>Lumbar back, sciatica</td>
<td>5.0</td>
<td>X</td>
</tr>
<tr>
<td>F</td>
<td>56</td>
<td>Low back pain, sciatica</td>
<td>Lumbar back</td>
<td>2.0</td>
<td>X</td>
</tr>
<tr>
<td>F</td>
<td>98</td>
<td>Lumbosacral syndrome</td>
<td>Lumbar back</td>
<td>3.0</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 2
Case reports for neuropathic low back pain after surgical trauma

Patients were mainly Caucasian (88%), with a mean age of 55.9 ± 15.7 years and a slightly higher proportion of females (58.5%). Mean duration of pain was 3.9 ± 5.2 years. The majority of patients had received multiple pain medications during the course of their disease. Lidocaine medicated plaster was administered as monotherapy in nine patients (22.0%) and in combination with other pain medication in 32 patients (78.0%).

In 31 (76%) of the reports, patients were judged as much or very much improved following treatment with 5% lidocaine medicated plaster as determined by the CGIC. Minimal improvement was reported for nine patients and “no change” was documented in one case. In the group receiving monotherapy or continuing their previous medication in combination with the plaster, ie, the subset of patients in which the treatment outcome was most likely related to the use of lidocaine plaster, nine patients (69%) experienced much or very much improvement and four (31%) showed minimal improvement.

Hyperalgesia was more prevalent at baseline in patients showing much or very much improvement than in patients with minimal or no improvement (81% versus 60%). The presence of allodynia was documented for the majority of all patients (71%) with no difference when stratified by improvement. Severity of allodynia (“painful” or “extremely painful”) was comparable in much or very much improved patients (45%) to minimally or not improved patients (40%). A total of 36% of the patients with much or very much improvement had a history of both hyperalgesia and painful allodynia compared with 20% of the patients with no or minimal improvement. Although these case reports do not show a clear association between the presence of allodynia and a positive treatment outcome, it was concluded based on the experience of the practitioners that the presence of hyperalgesia and/or allodynia may favor a positive treatment outcome using 5%
lidocaine medicated plaster, in particular if painful allodynia is the predominant pain complaint.

The presented case reports showed that patients with minimal improvement had a considerably longer duration of pain (mean 6.7 years) compared with very much (mean 4.1 years) and much improved (mean 3.5 years) patients. In the opinion of the majority of the physicians, patients with a long history of pain are less likely to benefit from lidocaine plaster and best results are obtained if the treatment is initiated early. However, it was conceded that this is applicable to pain medication in general.

Another factor thought to be a positive predictor for treatment with lidocaine plaster is the ability of patients to differentiate between back pain and nonback pain components, whereas the inability to distinguish between pain locations and predominant radicular pain was regarded as a negative predictor. Diagnosis and site of pain were considered to have no predictive value. Also, the description of neuropathic pain quality as given in the case reports (eg, burning, stabbing, shooting) was judged as not reliable enough for the prediction of treatment outcome, although clustering of the case reports by primary diagnosis revealed that, for instance, seven of eight patients presenting with failed back surgery syndrome reported clinical symptoms of burning pain (with and without hyperalgesia and/or allodynia), only one reported stabbing pain, and seven of those patients showed much or very much improvement (minimal improvement in the remaining one patient). Overall, two-thirds of the patients with nLBP (68.3%) reported burning pain, but no clear relationship between this symptom and clinical outcome was seen. However, this analysis of the case reports was not in agreement with the general experience of the participants, who considered burning, stabbing, and shooting pain as predictors of treatment success with 5% lidocaine medicated plaster.

Treatment with the lidocaine plaster led to much improvement in a 35-year-old male patient presenting with pain in his left foot following laminectomy at L5-S1 and surgery for a herniated disc at L4–L5. The patient initially presented with hyperalgesia, painful allodynia, and burning and stabbing pain with an average intensity of 9 out of 10 on a visual analog scale (VAS). Physical examination and diagnostic tests revealed reduced strength due to pain, pain during walking, and superficial sensitivity, ie, diffuse hypoesthesia in the left inferior limb and reduced patellar reflexes. The patient received three months of add-on treatment with one lidocaine plaster every 12 hours on the lateral side of the affected foot (with concomitant tramadol, 5 to 8 drops orally, corresponding to 12.5–20 mg every eight hours). At the end of the lidocaine plaster treatment, the patient showed much improvement, with occasional pain if a shoe was too tight or if he walked long distances.

Very much improvement in pain following lidocaine plaster monotherapy was reported for a 50-year-old female patient with localized, periumbilical, neuropathic pain (viral radiculitis) with an average intensity of 6 to 8 out of 10 on a VAS scale. The patient presented with hyperalgesia, painful allodynia, stabbing, burning, and shooting pain which had lasted for two years prior to initiation of lidocaine plaster treatment.
Unsatisfactory treatment with lidocaine plaster was reported for a 62-year-old polymorbid male patient (diabetes, polyneuropathy, hypothyreosis, high blood pressure, psoriatic arthritis) with a diagnosis of lumbosacral syndrome and low back pain radiating into both legs, knees, hands, and feet (10 out of 10 on a VAS scale). He had been in pain for 10 years, with hyperalgesia, painful allodynia, and stabbing and burning pain symptoms. He improved minimally when lidocaine therapy was added to his pre-existing medications (nonsteroidal anti-inflammatory drugs and a combination of a weak opioid and paracetamol).

While most clinical experience of the lidocaine plaster is with neuropathic pain, one of the nLBP groups felt that patients with structural abnormalities of the spinal cord, even though the cause has usually been characterized as nociceptive, may respond to topical treatment with lidocaine and that this should be explored in the future.

Go to: Chronic neuropathic pain after surgical and nonsurgical trauma

Fifty-eight case reports with a diagnosis of PNCCP were submitted (51.7% male, mean age 50.1 ± 15.5 years, mean duration of pain 2.6 ± 4.5 years, Table 3). The 17 cases with both etiologies present (Table 2) were included in the calculations of baseline data.

Table 3
Case reports for neuropathic pain after surgical and nonsurgical trauma

The majority of patients (83%) received lidocaine plaster as add-on therapy. Seventy-six percent of all patients showed much or very much improvement (as rated on the CGIC) during treatment with 5% lidocaine medicated plaster. The 10 patients (17%) receiving monotherapy were all very much or much improved.

Similar to the nLBP cases, the presence of hyperalgesia was clearly associated with a better treatment outcome and considered to have some predictive value. Of the patients showing much or very much improvement on the CGIC, 75% had initially experienced hyperalgesia compared with 46% of patients with minimal or no improvement. The presence of allodynia was documented for the vast majority (81%) of patients; 66% of much or very much improved patients had initially presented with “painful” or “extremely painful” allodynia compared with 54% of patients with minimal or no improvement. From the submitted case reports, no clear association between the occurrence of allodynia, duration of pain, or pain quality (burning, shooting, stabbing, or other), and treatment response was apparent. There was also no obvious impact of
diagnosis or site of pain on treatment outcome. Nevertheless, based on general treatment experience shared in the discussion groups, patients with allodynia, hyperalgesia, and spontaneous pain like burning or shooting were felt to be good candidates for treatment with lidocaine plaster. Long-lasting pain was thought to be associated with a negative treatment outcome by some of the physicians. Localized pain as opposed to widespread or generalized pain and positive sensory symptoms, like dysesthesias, were clearly identified as predictors for treatment with lidocaine plaster, whereas spontaneous pain without evoked pain and negative sensory symptoms, such as anesthesias or hypoesthesias, were considered linked with negative treatment outcomes. No predictive value was associated with paresthesia.

Superficial spontaneous (nonevoked) pain was considered to be a positive predictor as opposed to deep or widespread pain for treatment with lidocaine plaster. A 19-year-old male with spinal dystonia who received an abdominal neuromodulator implant developed superficial scar pain after surgery, including tactile allodynia (rated 7–10 on a VAS scale). Lidocaine plaster treatment resulted in satisfactory pain relief. A 51-year-old female with bipolar disorder who received a neuromodulator implant in the thorax experienced deep pain after surgery, perhaps generated by deeper nerve trauma and an inflammatory seroma. In contrast with the first case, she did not benefit from lidocaine plaster.

Chronic neuropathic back pain after surgical trauma

Seventeen case reports with a diagnosis of both PNCCP and nLBP were submitted and discussed in the nLBP and the PNCCP groups (41.2% male, mean age 50.6 ± 16.0 years (Table 2). Although the mean duration of pain was 2.9 ± 4.2 years, one patient had an exceptionally long duration of pain of 18 years, giving a mean pain duration in the group of 1.9 ± 1.7 years without inclusion of this outlier.

All except for one patient received lidocaine plaster as an add-on to pre-existing pain medication, and 76% of the patients showed much or very much improvement (as rated on the CGIC) during treatment with 5% lidocaine medicated plaster. The one patient receiving monotherapy was very much improved.

The majority of patients presented with hyperalgesia (76%) and allodynia (64%). Burning, shooting, or stabbing pain were experienced by 71%, 47%, and 35%, respectively. The patient with an exceptionally long duration of pain (18 years) was a particularly interesting case. This 69-year-old male underwent two surgical procedures in the early 1990s (transurethral resection of prostate and drainage of a spinal epidural empyema in the context of Conn syndrome (bladder and bowel dysfunction, failed back surgery syndrome). His average pain score on the NRS prior to initiation of lidocaine plaster treatment was 8–9, with a maximum of 10, and he presented with hyperalgesia, painful to extremely painful allodynia, lumbar pain around the incision scar, and shooting pain triggered by pressure, anesthesia at S4–S5, hypoesthesia at S3, and pelvic
paresthesia. His pre-existing regimen of trimetazidine, furadantine, lansoprazole, chlordiazepoxideclidinium bromide, and naproxen as required was stopped, and treatment with capsaicin, pregabalin, amitriptyline, tramadol, and lidocaine plaster was initiated. One month after the start of this regimen, pregabalin, amitriptyline, and tramadol were stopped due to the occurrence of adverse events, and pain has since been successfully controlled (very much improved) by capsaicin and lidocaine plaster.

Eighteen adverse events in 11 patients were reported on the 89 case report forms submitted. Mild application site reactions were the most common (six patients) and were considered likely related to lidocaine plaster treatment in five patients. Further adverse events were nausea (n = 2), vomiting (n = 1), somnolence (n = 1), and dizziness (n = 1). One patient had moderate diarrhea and severe vertigo, and one presented with severe depression, anxiety, suicide ideation, and worsening of pain. Except for an unclear relationship for “dizziness” and no available assessment for the patient with somnolence and nausea, none of the other adverse events were considered to be related to lidocaine plaster treatment. Three patients discontinued owing to adverse events (two application site reactions, one episode of dizziness).

**Summary**

Discussions in the four groups achieved similar conclusions regarding positive and negative outcome predictors for the treatment of nLBP and PNCCP with 5% lidocaine medicated plaster (Table 4).

**Table 4**

Potential predictors for treatment success with 5% lidocaine medicated plaster

There was general agreement that hyperalgesia and/or allodynia and localized pain, as opposed to widespread or generalized pain, are predictive of treatment success in both indications. Pain quality (ie, burning, stabbing, shooting) was judged to be a positive predictor for PNCCP and nLBP after surgical trauma, but the physicians felt it was not reliable enough for the prediction of treatment outcome for nLBP. Besides hyperalgesia and allodynia, other positive sensory phenomena, such as dysesthesia, were linked to treatment success, whereas negative sensory phenomena, such as anesthesia and hypoesthesia, were assessed to be associated with poorer outcomes. Paresthesia and diagnosis/site of pain were considered to be of no predictive value.
The case reports discussed at the meeting were contributed at the discretion of each physician, which introduces a possible selection bias, in that they are not necessarily representative of the entire treated population, but may allow a first assessment of the drug’s effectiveness in various neuropathic low back pain and post-traumatic pain conditions.

In all discussion groups, the clinical experience of participants clearly pointed to alodynia as a major positive predictor of treatment success with the plaster for the two indications. Previous case reports showing improvement of alodynia in patients with chronic low back pain\textsuperscript{15} and PNCCP\textsuperscript{11,12} using lidocaine plaster as an adjunct to existing pain therapy support the findings. The identification of alodynia as one potential predictor for treatment success in nLBP and PNCCP is consistent with treatment experience in other indications. Several randomized controlled trials have shown clinically relevant effects on the reduction of alodynia in patients with postherpetic neuralgia and other focal peripheral neuropathic pain conditions,\textsuperscript{3,5,26,27} which mirrors the clinical experience of participants at the previous two meetings in Athens (2007) and Berlin (2008). They considered alodynia and hyperalgesia as positive predictors for treatment success in postherpetic neuralgia, diabetic polyneuropathy, trigeminal neuralgia, and complex regional pain syndrome. Because different neuropathic pain conditions share common symptoms, the experts summarized their overall experience with 5% lidocaine medicated plaster during their final discussion and ranked potential predictors on the basis of published evidence and their own experience in different indications as proposing relatively high, medium, or low treatment success (Table 5).

![Table 5](chart.png)

Table 5
Probability of treatment success with 5% lidocaine medicated plaster

This led to the hypothesis that the value of predictors combined with an indication might indicate the likelihood of success. Furthermore, it was generally agreed by the participating clinicians that this symptom-based approach is preferable to an indication-based approach when selecting pain medication. The view that the classical indication/disease-based treatment approach might have to be reconsidered is echoed in recent publications\textsuperscript{28,29} and a lot of effort have been made to classify patients on the basis of their somatosensory profile, with the ultimate goal of finding new treatment approaches for chronic neuropathic pain, focusing on symptoms, signs, and pathophysiologic mechanisms rather than on underlying disease alone.\textsuperscript{30,31} In addition, there is an urgent need to accumulate clinical data which, in turn, could help to
determine therapeutic outcomes and criteria that a novel analgesic drug should meet in order to be a clinically worthwhile drug.

Some further general observations for treatment success with lidocaine plaster included a crucial requirement for clinical examination with a possible diagnosis of neuropathic pain. However, it was generally agreed by the participants from the nLBP groups that a clear definition for neuropathic back pain is lacking. Furthermore, early treatment is recommended, in particular with regard to neuropathic PNCCP. According to the experience of the participants, healing after surgery can take up to six months, so it was suggested that lidocaine plaster treatment should be initiated 1–2 weeks following surgery in order to prevent pain from becoming chronic. Patients with a long duration of pain are difficult to treat with any analgesic, and the lidocaine plaster is likely to be used as add-on therapy because it would be impossible to stop existing systemic treatment in most cases (although decreased dosing of these concomitant medications is often possible). However, an analysis of the case report data concerning a potential relationship between pain duration and treatment outcome did not show a trend towards a more favorable treatment effect in patients with a short duration of pain. Motivation and realistic expectations of the patients were also regarded as a prerequisite to treatment success. Furthermore, many participants commented that patients with psychologic problems are generally difficult to treat with any analgesic.

In summary, the findings of this conference have identified several predictors for treatment success with 5% lidocaine medicated plaster in the indications of chronic nLBP and neuropathic PNCCP. Common symptomatology with other neurologic indications suggests that treatment of localized neuropathic pain symptoms with the plaster can be considered across different neuropathic pain indications.

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