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Khalil N, Nicotra A, Rakowicz W.
Treatment for meralgia paraesthetica.
Cochrane Database of Systematic Reviews 2012, Issue 12. Art. No.: CD004159.
DOI: [10.1002/14651858.CD004159.pub3](https://doi.org/10.1002/14651858.CD004159.pub3).

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TABLE OF CONTENTS

HEADER	1
ABSTRACT	1
PLAIN LANGUAGE SUMMARY	2
BACKGROUND	3
OBJECTIVES	3
METHODS	3
RESULTS	4
DISCUSSION	4
AUTHORS' CONCLUSIONS	6
ACKNOWLEDGEMENTS	6
REFERENCES	7
ADDITIONAL TABLES	9
APPENDICES	10
WHAT'S NEW	12
HISTORY	13
CONTRIBUTIONS OF AUTHORS	13
DECLARATIONS OF INTEREST	13
SOURCES OF SUPPORT	13
DIFFERENCES BETWEEN PROTOCOL AND REVIEW	13
NOTES	13
INDEX TERMS	13

[Intervention Review]

Treatment for meralgia paraesthetica

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Editorial group: Cochrane Neuromuscular Group.

Publication status and date: Edited (no change to conclusions), published in Issue 5, 2013.

Citation: Khalil N, Nicotra A, Rakowicz W. Treatment for meralgia paraesthetica. *Cochrane Database of Systematic Reviews* 2012, Issue 12. Art. No.: CD004159. DOI: [10.1002/14651858.CD004159.pub3](https://doi.org/10.1002/14651858.CD004159.pub3).

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ABSTRACT

Background

Meralgia paraesthetica is a clinical syndrome for which a number of treatments are in common use, including conservative measures, injection of corticosteroid with local anaesthetic and surgery. We aimed to examine the evidence for the relative efficacy of these interventions. This review was first published in 2008. Searches were updated in 2010 and 2012.

Objectives

To assess the relative efficacy of commonly used treatments for meralgia paraesthetica.

Search methods

We searched the Cochrane Neuromuscular Disease Group Specialized Register (1 October 2012), CENTRAL (2012, issue 9 in *The Cochrane Library*), MEDLINE (January 1966 to October 2012), EMBASE (January 1980 to October 2012) and CINAHL Plus (January 1937 to October 2012) for randomised controlled studies. Non-randomised studies were identified by searching MEDLINE (January 1966 to October 2012) and EMBASE (January 1980 to October 2012). We also inspected the reference lists of these studies.

Selection criteria

We were unable to identify any randomised controlled trials (RCTs) or quasi-RCTs. We therefore looked for high quality observational studies meeting the following criteria:

- (1) At least five cases of meralgia paraesthetica.
- (2) Follow-up of at least three months after intervention (if any).
- (3) At least 80% of cases followed up.

Data collection and analysis

Three authors independently extracted relevant data from each study meeting the selection criteria and transferred into a data extraction form.

Main results

We found no RCTs or quasi-RCTs in the original review or updates in 20011 and 2012. Cure or improvement have been described in high quality observational studies:

- (1) A single study describes spontaneous improvement of meralgia paraesthetica in 20 (69%) of 29 cases.
- (2) Four studies evaluating the injection of corticosteroid and local anaesthetic found cure or improvement in 130 (83%) out of a combined total of 157 cases.

(3) Surgical treatments have been found to be beneficial in 264 (88%) out of 300 cases treated with decompression (nine studies); and 45 (94%) out of 48 cases treated with neurectomy (three studies).

(4) Ninety-nine (97%) out of 102 patients with iatrogenic meralgia paraesthetica recovered completely (three studies).

Authors' conclusions

In the absence of any published RCTs or quasi-RCTs, the objective evidence base for treatment choices in meralgia paraesthetica is weak. High quality observational studies report comparable high improvement rates for meralgia paraesthetica following local injection of corticosteroid and surgical interventions (either nerve decompression or neurectomy). However, a similar outcome has been reported without any intervention in a single natural history study.

PLAIN LANGUAGE SUMMARY

Treatment for meralgia paraesthetica, a condition causing numbness and sometimes pain in the thigh

Meralgia paraesthetica is a common clinical condition caused by damage to the lateral cutaneous nerve of the thigh, resulting in pain, numbness and tingling in the front and outer side of the thigh. The diagnosis is easy to make clinically. Although not life-threatening, the condition can cause a lot of discomfort to the affected individual. A number of interventions are in common use and we wanted to examine the evidence in the literature for their efficacy. We found no randomised controlled trials (RCTs) in the original review or when searches were updated in 2010 and 2012. Local injections of corticosteroid and surgical operations were found to be effective treatments in observational studies. However, a single observational study also showed that meralgia paraesthetica improved spontaneously in the majority of cases. RCTs of treatments for meralgia paraesthetica are needed.

BACKGROUND

Meralgia paraesthetica (Greek: *Meros Algos* meaning thigh pain) is the name given to the clinical syndrome caused by damage to the lateral cutaneous nerve of the thigh, which causes various sensory symptoms over the anterolateral thigh (Roth 1895). The condition has previously been reviewed (Khalil 2001). It is unilateral in 78% of cases, and 68% occur in middle-aged men. A familial form has also been reported (Malin 1979).

The nerve arises from the lumbar plexus and contains fibres from the L2 and L3 spinal nerve roots. It runs obliquely down and laterally in the pelvis along the lateral border of the psoas muscle, crosses the iliacus and then passes through a fibrous tunnel formed by a small split in the lateral end of the inguinal ligament, about one centimetre medial and inferior to the anterior superior iliac spine. As it enters the thigh it remains beneath the deep fascia, piercing it about 10 cm below the inguinal ligament to become superficial. It ends by dividing into anterior and posterior branches which supply the anterolateral and lateral aspects of the thigh. There are several anatomic variations in its course through the inguinal ligament, branching level and through its course in the thigh which may predispose the nerve for damage.

The commonest cause of damage to this nerve is entrapment at the level of the inguinal ligament. This is most often seen in association with obesity, but also in other conditions that increase intra-abdominal volume such as pregnancy and ascites, in which the nerve may be kinked or compressed by the bulging abdomen as it leaves the pelvis. However, entrapment may also occur in lean subjects and in children (Edelson 1994). Other causes of damage at the ligament include external compression, for example as a result of leaning against a workbench or wearing a tight corset or trousers; trauma such as an avulsion fracture of the anterior superior iliac spine; and surgical operations, for example bone graft harvesting. In the upper thigh the nerve may be damaged by supporting a heavy weight on the thigh, by blunt sport injuries, by misplaced intramuscular injections, or by various operations either directly or by positioning during the operation. Damage to the proximal segment of the nerve in the pelvis is rare but can be caused by compression due to intra-pelvic and retroperitoneal masses, as well as surgical operations. Finally, involvement of the lateral cutaneous nerve of the thigh is well recognised in generalised neuropathies such as diabetes, AIDS and leprosy.

The diagnosis is easy to make on clinical grounds. The patient complains of varying degrees of pain, burning, numbness, paraesthesiae, and dysaesthesiae over the anterolateral aspect of the thigh. The differential diagnosis includes femoral neuropathy, lumbar plexopathy and L2/L3 radiculopathy. Rarely, confirmation is needed by nerve conduction studies, which may show a reduction in sensory conduction velocity and/or reduction in amplitude or absence of the response (Laguensy 1991). Needle electrode examination of paraspinal muscles, iliopsoas, and quadriceps may help to exclude femoral neuropathy, lumbar plexopathy and L2 and L3 radiculopathy. Imaging (plain x-ray of the lumbar spine, magnetic resonance imaging of the lumbar spine, pelvic ultrasound or CT scanning) may be needed when a structural lesion is suspected.

The condition may resolve on its own (Ecker 1938). Therefore reassurance may be the only advice needed, especially if the condition is mild and due to a temporary cause

such as pregnancy. In other cases, treatment is usually conservative. Conservative advice may include avoidance of external compressive and traumatic factors. Injection of local anaesthetics with corticosteroids at the presumed site of entrapment at the inguinal ligament has also been tried and may also have diagnostic value. Several injections may be needed. A minority of cases may require surgery (Williams 1991). This is an update of a review first published in 2008. Updated searches were undertaken in 2010 and 2012, in which no new studies were found.

OBJECTIVES

The objective of the review is to assess the published evidence for the efficacy of different treatment modalities (such as conservative measures, local injection and surgery) in people with meralgia paraesthetica.

METHODS

Criteria for considering studies for this review

Types of studies

We searched for RCTs or quasi-RCTs.

Types of participants

Participants of all ages and both sexes with a clinical diagnosis of meralgia paraesthetica regardless of aetiology.

Types of interventions

1. No intervention: reassurance alone.
2. Conservative measures.
3. Local injection with steroids and local anaesthetic.
4. Surgery: decompression (neurolysis) or nerve section (neurectomy).

Types of outcome measures

The outcome was resolution of, or improvement in, the symptoms sustained for at least three months after the intervention.

Search methods for identification of studies

Electronic searches

(1) We searched the Cochrane Neuromuscular Disease Group Specialized Register (1 October 2012), CENTRAL (2012, issue 9 in *The Cochrane Library*), MEDLINE (January 1966 to October 2012), EMBASE (January 1980 to October 2012), CINAHL Plus (January 1937 to October 2012), for RCTs, using the key words 'meralgia', 'lateral cutaneous nerve of the thigh' and 'lateral femoral cutaneous nerve'

The detailed electronic search strategies are in the appendices: MEDLINE [Appendix 1](#), EMBASE [Appendix 2](#), CINAHL Plus [Appendix 3](#), and CENTRAL [Appendix 4](#).

(2) We identified non-randomised studies by searching MEDLINE (January 1966 to October 2012) and EMBASE (January 1980 to October 2012), using the key words: 'meralgia', 'lateral cutaneous nerve of the thigh' and 'lateral femoral cutaneous nerve'.

We also inspected the reference lists for these studies to identify further studies. We also searched trials registries ClinicalTrials.gov

and the World Health Organization International Clinical Trials Registry Platform (ICTRP) to identify ongoing trials using the terms meralgia, lateral cutaneous nerve of the thigh, lateral femoral cutaneous nerve and lateral femoral nerve.

We first identified all high-quality observational studies in which the diagnosis, intervention and outcome were clearly stated for most (80%) of the patients. Second, we analysed all other studies which dealt with the treatment of meralgia paraesthetica, including single case reports.

Data collection and analysis

NK wrote the protocol and review. All three authors checked the titles and abstracts of the articles identified by the search. The full text of all potentially relevant studies was obtained and independently assessed for potential inclusion. The review authors resolved any disagreement about inclusion by discussion. The authors transferred data from each reference into a data extraction form created for the review.

The three review authors independently extracted data on patients, methods, interventions, outcomes and results.

Methods of analysis for future updates

If RCTs are identified in future updates of this review, two review authors will independently assess their risk of bias according to the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011), evaluating seven domains: sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessors, incomplete outcome data, selective outcome reporting and other biases. We will assess each domain as representing a high, low or unclear risk of bias.

If we identify two or more studies comparing the same treatments in future updates of this review, then we will use the Cochrane Review Manager (RevMan) statistical software to pool their results employing methods appropriate to the type of outcome measures. Dichotomous outcomes will give proportions for each treatment group and the treatments will usually be compared using the ratio of the proportions known as risk ratios (RR). Studies will be combined to give an overall RR using a fixed-effect analysis unless there is significant evidence of heterogeneity between studies when a random-effects analysis will be used. Means of measured outcomes will be used to obtain a mean difference pooled from all studies to be combined using a fixed-effect analysis unless there is evidence of heterogeneity making a random-effects analysis more appropriate. Counted episodes may be expressed as differences in rates/unit time at risk with standard errors. In that case the simplest analysis will be to use generic inverse variance in RevMan to obtain and test the pooled difference between treatment effects.

RESULTS

Description of studies

The number of papers found by the strategies in the appendices run on 1 October 2012 were Cochrane Neuromuscular Disease Group Specialized Register 10 (0 new papers), CENTRAL 19, MEDLINE 83 (4 new papers) (with no RCT filter 46 new, 523 total), EMBASE 77 (20 new papers) (no RCT filter 122 new, 631 total), CINAHL Plus 25 (7 new papers). We found no ongoing trials on ClinicalTrials.gov or the WHO ICTRP.

We identified no RCTs or quasi-RCTs. We therefore selected high quality observational studies among these papers, where the authors described the outcome in five or more cases and more than 80% of patients were followed up for a minimum period of three months after the intervention. Relevant data from each study dealing with treatment were transferred into a data extraction form created for this review.

Studies included in the [Discussion](#) section are case series with non-randomised controls.

We analysed separately conservative treatment, local injection and surgery in the following subgroups:

1. patients with meralgia paraesthetica due to spontaneous entrapment.
2. patients with meralgia paraesthetica due to other causes.

Risk of bias in included studies

There were no included RCTs or quasi-RCTs.

Effects of interventions

No RCTs or quasi-RCTs were found. We reported high quality observational studies in the [Discussion](#).

DISCUSSION

(1) Spontaneous recovery and conservative measures

Table 1

Although many authors mentioned that meralgia paraesthetica tends to regress spontaneously, we identified only a few studies that mention the proportion of patients that improve spontaneously. Also, these studies did not differentiate between patients who recovered spontaneously or needed some sort of conservative treatment. Therefore, we combined spontaneous and conservative measures under one topic. There was a general anecdotal agreement on the efficacy of conservative measures, which most authors propose as the first treatment option. Different measures were applied in different individuals and circumstances.

Results of high quality observational studies

Only one study met our minimum inclusion criteria. [Ecker 1938](#) found that out of 29 patients with nerve entrapments followed up without intervention, 18 (62%) settled completely and two (7%) partially.

Other studies and case reports

[Chhuttani 1966](#) examined 115 patients but complete follow-up data were missing in 55 (48%) patients. Out of the 60 patients who were followed up for seven years, 26 (43%) patients had complete recovery, 16 (27%) partial recovery and 18 (30%) remained unchanged. Other studies reported several measures to reduce burning pain and paraesthesiae including analgesics, non-steroidal anti inflammatory drugs, amitriptyline, phenytoin, carbamazepine, various narcotics and cooling with ice packs ([Kitchen 1972](#); [Massey 1980](#); [Stevens 1957](#)). Some authors have claimed success with topical capsaicin ([Puig 1995](#)) and transcutaneous electrical nerve stimulation ([Fisher 1987](#)). Regrettably, these studies were either single case reports or patients were not adequately followed-up

providing no confirmatory evidence on long-term efficacy of the conservative measures used.

(2) Nerve block

Table 2

Results of high quality observational studies

The four studies we identified with adequate outcome measures all reported a good response to local infiltration (Dureja 1995; Haim 2006; Ivins 2000; Prabhakar 1989).

In a series of 44 patients followed up to one year, Prabhakar 1989 reported that 32 (73%) improved completely, with a single injection of hydrocortisone acetate, nine (20%) partially and the symptoms recurred in only three (7%) patients. A similar outcome was observed by Dureja 1995 who treated 40 patients, 34 (85%) recovered completely, two (5%) partially and four (10%) were unchanged. Ivins 2000 who treated 14 patients (one with bilateral MP) found that only five (33%) improved completely and ten (77%) showed no significant improvement.

Other studies and case reports

Corticosteroids and local anaesthetics were successfully used by Amodei 1990, Kallgren 1993, Shannon 1995 and Warfield 1986.

Local injection was also successful in patients with AIDS (Myers 1996) and in patients with leprosy (Theuvenet 1993). As observed for the studies on spontaneous recovery and conservative treatment, these studies based their observations on a small patient sample size or lacked a satisfactory follow-up.

The symptoms are often relieved by an injection with corticosteroids and an analgesic, or more commonly, corticosteroids and local anaesthetic agent at the presumed trigger point at the inguinal ligament.

(3) Surgery

Results of high quality observational studies

Nine studies of decompression (Table 3) and three neurectomy studies (Table 4) met the inclusion criteria.

The range of patients improved after decompression varied between 60% in the smallest series of ten patients reported by van Eerten 1995 to 99% in the largest series of 82 patients reported by Teng 1972.

The range of patients improved after neurectomy varied between 85% (Antoniadis 1995) and 100% (van Eerten 1995) but the patient sample size of neurectomy was considerably smaller than the sample size of decompression.

Other studies and case reports

Some authors (Benini 1992; Kalangu 1995; Keegan 1962; Monesi 1965; Moscona 1978; Privat 1986) reported on small patient sample size or were unclear on the follow-up duration. Therefore, no clinically significant outcome on surgical treatment of meralgia paraesthetica can be provided by these studies.

In all reports of large series it was only a minority of patients who required surgery. Surgery is usually reserved for patients who have failed to respond to conservative measures and local injections.

Two surgical techniques have been developed to deal with this disorder. Simple decompression (also known as neurolysis) involves releasing the lateral end of the inguinal ligament or decompression and transposition of the nerve. In neurectomy a small segment of the nerve is excised at its passage through the inguinal ligament. Neurectomy eliminates the positive symptoms but leaves a patch of numbness in the anterolateral thigh which usually reduces in size with time (Williams 1991) and is often reserved for patients with meralgia paraesthetica of long duration, especially for those who failed early decompression (Ivins 2000; Nouraei 2007).

The choice of operation is still debatable. In two studies direct comparison of decompression and neurectomy claimed the superiority of neurectomy. van Eerten 1995 operated on 21 patients performing 10 decompression and 11 neurectomy operations; nine out of 11 neurectomy cases were successful against three out of ten decompression cases. Antoniadis 1995 compared the results of decompression and neurectomy in 29 patients (33 procedures) operated upon over a period of 24 years. Eighteen patients (20 procedures) had decompression, and 11 (13 procedures) had neurectomy. Complete or partial pain relief was found in 15 (70%) after decompression and in 11 (80%) after neurectomy. However, in these two studies the comparisons were not based on randomised treatment allocation.

(4) Iatrogenic meralgia paraesthetica

Table 5

Results of high quality observational studies

Three studies were found describing the course of meralgia paraesthetica presenting after spinal surgery. The largest series of all (252 patients) was that of Yang 2005. All the 60 patients who sustained damage to the nerve recovered completely; 32 (53%) recovered within the first week and the rest within two months. Mirovsky 2000 reported that of 105 patients who underwent spinal surgery there were 21 who sustained damage to the nerve. This was bilateral in six, making a total of 27 injuries. Twenty-two of these recovered completely in three months, two in six months, one recovered partially after one year and two had not recovered by then. A total of 25 (93%) recovered after one year. Gupta 2004 reported a similar proportion 14 (92%) of the 15 cases were asymptomatic at follow-up after six months.

Other studies and case reports

Many studies (Banwart 1995; Dibenedetto 1996; Good 1981; Harris 1994; Hutchins 1998; Massey 1980; Thanikachalam 1995; Trousdale 1995; van den Broecke 1998; Warner 2000; Weikel 1977) reported iatrogenic meralgia paraesthetica. However, other than three studies following spinal surgery (Table 5), these observations from small series do not provide evidence supporting any particular treatment for meralgia paraesthetica.

Meralgia paraesthetica may follow varieties of (spinal, abdominal and pelvic) operations. Mirovsky 2000 considered multiple mechanisms that may result in meralgia paraesthetica after spinal surgery: the nerve can be damaged at the anterior superior iliac spine by a direct compression from the Hall-Relton frame, or at the retroperitoneum by haematoma or traction, or by direct injury at the anterior iliac crest when bone is harvested. Iatrogenic nerve damage can result in either neuropraxia or

axonotmesis or neurotmesis. Meralgia paraesthetica due to external compression, positioning or retraction (neuropraxia) may resolve more quickly than meralgia paraesthetica caused by direct injury with axonotmesis or neurotmesis, which may result in a poor outcome. This would explain the two cases of [Mirovsky 2000](#) who did not recover following nerve damage when bone was harvested.

(5) Meralgia paraesthetica due to other causes

Results of high quality observational studies

We identified no studies that fulfil the inclusion criteria.

Other studies and case reports

Meralgia paraesthetica has been reported in patients with leprosy ([Theuvenet 1993](#)), HIV ([Myers 1996](#)) and diabetes ([van Slobbe 2004](#)). The sample sizes are small and it is not possible to tell if the meralgia paraesthetica is part of the neuropathy or merely a chance occurrence.

Influence of disease factors on the outcome of meralgia paraesthetica

The choice of treatment modality for meralgia paraesthetica may be influenced by disease factors such as duration of symptoms and variable time course. It may, therefore, be difficult to assess the long-term value of any intervention because the outcome may be attributed to the natural course of the disease, to the intervention or to both.

Macnicol and Thompson ([Macnicol 1990](#)) are the first to mention the effect of symptom duration on the outcome. They treated 25 patients with refractory symptoms by decompression. They found the operation was beneficial in 15 (60%) patients and in the 10 (40%) patients who did not benefit from the operation, they found the symptoms had been present for longer than 18 months. Conversely, [Siu 2005](#) found that prolonged symptom duration did not preclude a favourable outcome.

AUTHORS' CONCLUSIONS

Implications for practice

In the absence of any published RCT or quasi-RCT, the objective evidence for treatment choices in meralgia paraesthetica is weak. The following outcomes have been reported in high quality observational studies:

1. A single study describes spontaneous improvement of meralgia paraesthetica in 20 (69%) out of 29 cases.
2. Injection of corticosteroid and local anaesthetic are followed by improvement in 130 (83%) out of a combined total of 157 cases.
3. High success rates have been reported for both decompression (264 (88%) out of 300 cases) and nerve section (45 (94%) out of 48 cases).
4. Patients with iatrogenic meralgia paraesthetica usually recover completely (99 (97%) out of 102 patients followed), except when the condition is the result of direct injury causing axonotmesis or neurotmesis lesion.

Implications for research

1. There is a need for high quality RCTs to determine whether corticosteroid injections are superior to conservative treatment. Long-term follow-up is needed to assess recurrence rate after injection and the number of injections needed for long-term benefit.
2. Decompression operations and neurectomy operations need to be compared with corticosteroids and with each other in RCTs.
3. The impact of symptom duration on outcome is not altogether clear and should be factored into the design and analysis of clinical trials

ACKNOWLEDGEMENTS

We are deeply grateful to Prof Hughes for his advice and comments throughout the preparation of this review.

The editorial base of the Cochrane Neuromuscular Disease Group is supported by the MRC Centre for Neuromuscular Diseases.

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ADDITIONAL TABLES

Table 1. Spontaneous recovery

Study	Number treated	Number cured	Number improved	Number unchanged
Ecker 1938	29	18	2	9

Table 2. Treatment for meralgia paraesthetica by nerve block

Study	Number treated	Complete improvement	Partial improvement	Unchanged
Dureja 1995	40	34	2	4
Haim 2006	58	48	0	10
Ivins 2000	15	5	0	10
Prabhakar 1989	44	32	9	3

Table 3. Treatment of meralgia paraesthetica by decompression

Study	Number treated	Complete improvement	Partial improvement	Unchanged
Antoniadis 1995	20	8	7	5
Ducic 2006	48	27	12	9
Edelson 1994	21	14	7	0
Macnicol 1990	25	11	4	10
Nahabedian 1995	26	20	5	1

Table 3. Treatment of meralgia paraesthetica by decompression *(Continued)*

Nouraei 2007	23	20	0	3
Siu 2005	45	33	9	3
Teng 1972	82	69	12	1
van Eerten 1995	10	3	3	4

Table 4. Treatment of meralgia paraesthetica by neurectomy

Study	Total treated	Complete improvement	Partial improvement	Unchanged
Antoniadis 1995	13	6	5	2
van Eerten 1995	11	9	2	0
Williams 1991	24	23	0	1

Table 5. Iatrogenic meralgia paraesthetica

Study	Type of operation	Number operated	Number affected	Number recovered
Gupta 2004	Spine surgery	110	15	14
Mirovsky 2000	Spine surgery	105	27	25
Yang 2005	Spine surgery	252	60	60

APPENDICES

Appendix 1. MEDLINE (OvidSP) search strategy

Database: Ovid MEDLINE(R) <1946 to September Week 3 2012>

Search Strategy:

```

1 randomized controlled trial.pt. (337313)
2 controlled clinical trial.pt. (85209)
3 randomized.ab. (240228)
4 placebo.ab. (134773)
5 drug therapy.fs. (1570588)
6 randomly.ab. (172607)
7 trial.ab. (248869)
8 groups.ab. (1129847)
9 or/1-8 (2923140)
10 exp animals/ not humans.sh. (3785951)
11 9 not 10 (2482935)
12 meralgia.tw. (320)
13 lateral femoral cutaneous nerve.tw. (253)

```

14 lateral cutaneous nerve of the thigh.tw. (62)
15 or/12-14 (533)
16 femoral nerve/ or femoral neuropathy/ (2298)
17 Nerve Compression Syndromes/ (8866)
18 peripheral nervous system diseases/ (18881)
19 paresthesia/ (4885)
20 or/17-19 (31510)
21 16 and 20 (571)
22 or/12-14,21 (950)
23 11 and 22 (84)
24 remove duplicates from 23 (83)
25 24 and 20100901:20121001.(ed). (4)
26 remove duplicates from 15 (523)
27 26 and 20100901:20121001.(ed). (46)

Line 15 used without the filter for non RCT studies

Appendix 2. EMBASE (OvidSP) search strategy

Database: Embase <1980 to 2012 Week 39>

Search Strategy:

1 crossover-procedure.sh. (35124)
2 double-blind procedure.sh. (111113)
3 single-blind procedure.sh. (16444)
4 randomized controlled trial.sh. (329946)
5 (random\$ or crossover\$ or cross over\$ or placebo\$ or (doubl\$ adj blind\$) or allocat\$).tw,ot. (901479)
6 trial.ti. (135715)
7 clinical trial/ (872179)
8 or/1-7 (1501424)
9 (animal/ or nonhuman/ or animal experiment/) and human/ (1210834)
10 animal/ or nonanimal/ or animal experiment/ (3317492)
11 10 not 9 (2746926)
12 8 not 11 (1412858)
13 limit 12 to embase (1095266)
14 meralgia.tw. (390)
15 Meralgia Paresthetica/ (366)
16 lateral femoral cutaneous nerve/ (58)
17 lateral femoral cutaneous nerve.tw. (336)
18 ("lateral cutaneous nerve" adj4 thigh).tw. (71)
19 lateral cutaneous nerve of thigh/ (1)
20 or/14-19 (848)
21 femoral nerve/ or femoral neuropathy/ (3070)
22 Nerve Compression/ (10516)
23 Peripheral Neuropathy/ (28736)
24 paresthesia.mp. or PARESTHESIA/ (27342)
25 or/22-24 (63629)
26 21 and 25 (531)
27 20 or 26 (1261)
28 13 and 27 (77)
29 remove duplicates from 28 (77)
30 remove duplicates from 20 (819)
31 limit 30 to embase (631)

Line 16 used without the filter for non RCT studies

Appendix 3. CINAHL Plus EBSCOhost search strategy

Monday, October 01, 2012 9:06:15 AM

S32 S30 and S31 7
S31 EM 20100901-20121001 765156
S30 S18 and S29 25

S29 S22 or S28 130
 S28 S23 and S27 30
 S27 S24 or S25 or S26 4457
 S26 (MH "Paresthesia") 541
 S25 (MH "peripheral nervous system diseases") 2911
 S24 (MH "Nerve Compression Syndromes") 1142
 S23 femoral neuropath* 47
 S22 S19 or S20 or S21 102
 S21 lateral cutaneous nerve thigh 7
 S20 lateral femoral cutaneous nerve 54
 S19 meralgia 65
 S18 S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15 or S16 or S17 562405
 S17 ABAB design* 78
 S16 TI random* or AB random* 114388
 S15 (TI (cross?over or placebo* or control* or factorial or sham? or dummy)) or (AB (cross?over or placebo* or control* or factorial or sham? or dummy)) 235572
 S14 (TI (clin* or intervention* or compar* or experiment* or preventive or therapeutic) or AB (clin* or intervention* or compar* or experiment* or preventive or therapeutic)) and (TI (trial*) or AB (trial*)) 79800
 S13 (TI (meta?analys* or systematic review*)) or (AB (meta?analys* or systematic review*)) 23660
 S12 (TI (single* or doubl* or tripl* or trebl*) or AB (single* or doubl* or tripl* or trebl*)) and (TI (blind* or mask*) or AB (blind* or mask*)) 18576
 S11 PT ("clinical trial" or "systematic review") 105077
 S10 (MH "Factorial Design") 843
 S9 (MH "Concurrent Prospective Studies") or (MH "Prospective Studies") 187352
 S8 (MH "Meta Analysis") 14759
 S7 (MH "Solomon Four-Group Design") or (MH "Static Group Comparison") 30
 S6 (MH "Quasi-Experimental Studies") 5576
 S5 (MH "Placebos") 7763
 S4 (MH "Double-Blind Studies") or (MH "Triple-Blind Studies") 25056
 S3 (MH "Clinical Trials+") 148264
 S2 (MH "Crossover Design") 9685
 S1 (MH "Random Assignment") or (MH "Random Sample") or (MH "Simple Random Sample") or (MH "Stratified Random Sample") or (MH "Systematic Random Sample") 58283
 Bottom of Form

Appendix 4. CENTRAL search strategy

#1 meralgia
 #2 "lateral femoral cutaneous nerve"
 #3 "lateral cutaneous nerve" NEAR thigh
 #4 (#1 OR #2 OR #3)
 #5 MeSH descriptor Femoral Nerve, this term only
 #6 MeSH descriptor Femoral Neuropathy, this term only
 #7 (#5 OR #6)
 #8 MeSH descriptor Nerve Compression Syndromes, this term only
 #9 MeSH descriptor Peripheral Nervous System Diseases, this term only
 #10 MeSH descriptor Paresthesia, this term only
 #11 (#8 OR #9 OR #10)
 #12 (#7 AND #11)
 #13 (#4 OR #12)

WHAT'S NEW

Date	Event	Description
18 April 2013	Amended	Corrected date 'Assessed as up-to-date'

HISTORY

Protocol first published: Issue 2, 2003

Review first published: Issue 3, 2008

Date	Event	Description
19 October 2012	New search has been performed	Minor editorial changes and text revised to indicate that searches were updated. Published notes added.
19 October 2012	New citation required but conclusions have not changed	A search for new studies was conducted in October 2012. No randomised or quasi-randomised trials were found and no additional observational studies.
5 October 2010	New search has been performed	A search for new studies was undertaken in October 2010. No randomised controlled trials were identified.
13 May 2008	Amended	Converted to new review format.

CONTRIBUTIONS OF AUTHORS

The three authors searched for studies dealing with treatment of meralgia paraesthetica, independently abstracted the data from the relevant studies identified by the search and then checked these data together. Any disagreement about inclusion was resolved by discussion between the authors. NK drafted the review. AN and WR read the review and added their comments independently. All three authors agreed the final version of the review and subsequent updates.

DECLARATIONS OF INTEREST

None known.

SOURCES OF SUPPORT

Internal sources

- None, Not specified.

External sources

- No sources of support supplied

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

We replaced previous quality assessment methods with the 'Risk of bias' tool as described in the Cochrane Handbook for Systematic Reviews of Interventions ([Higgins 2011](#)).

We included searches of clinical trials registries ClinicalTrials.gov and the World Health Organization International Clinical Trials Registry Platform (ICTRP) to identify ongoing trials in our searches.

Changes in authorship: N Legg withdrew following protocol publication; A Nicotra and W Rakowicz became authors at the review stage.

NOTES

Significant new data are very slow to emerge in this field, therefore scheduled updates are every four years. If new evidence emerges contrary to this, an earlier update will be scheduled.

INDEX TERMS

Medical Subject Headings (MeSH)

Adrenal Cortex Hormones [therapeutic use]; Anesthetics, Local [therapeutic use]; Decompression, Surgical; Femoral Nerve [surgery]; Femoral Neuropathy [*therapy]; Nerve Block; Nerve Compression Syndromes [*therapy]; Paresthesia [*therapy]; Thigh [innervation]

MeSH check words

Humans