ClinicalEvidence

Bell's palsy

Search date June 2010

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ABSTRACT

INTRODUCTION: Bell's palsy is characterised by an acute, unilateral, partial, or complete paralysis of the face (i.e., lower motor neurone pattern). The weakness may be partial (paresis) or complete (paralysis), and may be associated with mild pain, numbness, increased sensitivity to sound, and altered taste. Bell's palsy remains idiopathic, but a proportion of cases may be caused by reactivation of herpes viruses from the geniculate ganglion of the facial nerve. Bell's palsy is most common in people aged 15 to 40 years, with a 1 in 60 lifetime risk. Most make a spontaneous recovery within 1 month, but up to 30% show delayed or incomplete recovery. METHODS AND OUTCOMES: We conducted a systematic review to answer the following clinical question: What are the effects of treatments in adults and children? We searched: Medline, Embase, The Cochrane Library, and other important databases up to June 2010 (Clinical Evidence reviews are updated periodically, please check our website for the most up-to-date version of this review). We included harms alerts from relevant organisations such as the US Food and Drug Administration (FDA) and the UK Medicines and Healthcare products Regulatory Agency (MHRA). RESULTS: We found 14 systematic reviews, RCTs, or observational studies that met our inclusion criteria. We performed a GRADE evaluation of the quality of evidence for interventions. CONCLUSIONS: In this systematic review we present information relating to the effectiveness and safety of the following interventions: antiviral treatment, corticosteroids (alone or plus antiviral treatment), hyperbaric oxygen therapy, facial nerve decompression surgery, and facial retraining.

QUESTIONS

What are the effects of drug treatments for Bell's palsy in adults and children? . . . 3

What are the effects of surgical treatments for Bell's palsy in adults and children? . . . 15

What are the effects of physical treatments for Bell's palsy in adults and children? . . . 16

INTERVENTIONS

DRUG TREATMENTS

Likely to be beneficial

Corticosteroids . . . 3

Corticosteroids plus antiviral treatment . . . 9

Unknown effectiveness

Hyperbaric oxygen therapy New . . . 13

Unlikely to be beneficial

Antiviral agents . . . 6

SURGICAL TREATMENTS

Unknown effectiveness

Facial nerve decompression surgery . . . 15

PHYSICAL TREATMENTS

Unknown effectiveness

Facial retraining . . . 16

To be covered in future updates

What are the effects of treatments for Bell's palsy in pregnant women?

Botulinum toxin

Naftidrofuryl oxalate

Nerve regeneration agents

Electric stimulation

Acupuncture

Key points

- Bell's palsy is an idiopathic, unilateral, acute paresis or paralysis of facial movement caused by dysfunction of the lower motor neurone. Up to 30% of people with acute peripheral facial palsy have an alternative cause diagnosed at presentation or during the course of their facial palsy. Alternative causes are higher in children (>50%), warranting specialist evaluation at presentation. Severe pain, vesicles (ear or oral), and hearing loss or imbalance, suggest Ramsay Hunt syndrome caused by herpes zoster virus infection, which requires specialist management.

  Most people with paresis (partial weakness) make a spontaneous recovery within 3 weeks. Up to 30% of people, typically people with paralysis (complete palsy), have a delayed or incomplete recovery.

- Corticosteroids alone improve rate of recovery and the proportion of people who make a full recovery, and reduce cosmetically disabling sequelae, motor synkinesis, and autonomic dysfunction compared with placebo or no treatment.

- Antiviral treatment alone is no more effective than placebo and is less effective than corticosteroid treatment at improving recovery of facial motor function and at reducing the risk of disabling sequelae.

- For people with paresis at presentation (about 70%), there is no evidence of a clinically important additive effect of adding antivirals to corticosteroid therapy.

  For people who develop paralysis (about 30%), and may demonstrate a trend towards complete degeneration on electrophysiological testing, it is unknown whether adding antiviral treatment to corticosteroid therapy has a significant additive or synergistic effect.

- Hyperbaric oxygen may improve time to recovery and the proportion of people who make a full recovery compared with corticosteroids; however, the evidence for this is weak.
- We don't know whether facial nerve decompression surgery is beneficial in Bell's palsy.
- Facial retraining may improve recovery of facial motor function scores including stiffness and lip mobility, and may reduce the risk of motor synkinesis in Bell's palsy, but the evidence is too weak to draw conclusions.
- **Clinical guide**

  Good evidence exists that corticosteroid therapy improves facial palsy in people with Bell's palsy independent of severity at presentation. Treatment is likely to be more effective when started within 72 hours of onset, and less effective after 7 days.

  Contraindications to corticosteroid therapy exist and adverse effects are more likely following 7 days of treatment.

  Combination therapy with a corticosteroid and antiviral is no more effective than corticosteroid therapy alone for Bell's palsy; however, combination therapy should be considered when there is evidence of viral infection with herpes zoster, such as zoster sine herpete and Ramsay Hunt syndrome.

  People presenting with complete facial paralysis should be offered a choice of combination therapy with a corticosteroid and antiviral, because the evidence for therapy without antivirals is not yet definitive for this group and antivirals have few adverse effects.

  In people presenting with mild facial paresis from Bell's palsy, there is a high rate of spontaneous resolution without treatment. Bell's palsy is a diagnosis of exclusion and clinicians should remain mindful of the causes of facial palsy, including tumour and infection.

  All children presenting with facial palsy and adults with delayed recovery should be referred for assessment by an otolaryngologist - head and neck surgeon or other appropriate specialist.

  The authors believe that facial palsy should not be treated only by protocol-driven practice. Bell's palsy is a diagnosis of exclusion, although a search for other causes of facial palsy must not delay treatment of likely Bell's palsy. Patients should have the opportunity to participate in an informed choice in their management where relevant.

DEFINITION

Bell's palsy is an idiopathic, acute, unilateral paresis or paralysis of the face in a pattern consistent with peripheral facial nerve dysfunction, and may be partial or complete, occurring with equal frequency on the right and left sides of the face. There is evidence that Bell's palsy is caused by herpes viruses. [1] Additional symptoms of Bell's palsy may include mild pain in or behind the ear, oropharyngeal or facial numbness, impaired tolerance to ordinary levels of noise, and disturbed taste on the anterior part of the tongue. [2] Severe pain is more suggestive of herpes zoster virus infection (shingles) and possible progression to a Ramsay Hunt syndrome, but another cause should be carefully excluded. Up to 30% of people with an acute peripheral facial palsy will not have Bell's palsy; other causes may include stroke, tumour, trauma, middle ear disease, and Lyme disease. Features such as sparing of movement in the upper face (central pattern), or weakness of a specific branch of the facial nerve (segmental pattern), suggest an alternative cause. [3] Bell's palsy is less commonly the cause of facial palsy in children aged under 10 years (<50%), so an alternative cause should be carefully excluded. [4] The assessment should identify acute suppurative ear disease (including mastoiditis), a parotid tumour, or Lyme disease in endemic areas. [5]

INCIDENCE/ PREVALENCE

The incidence is about 20/100,000 people a year, or about 1/60 people in a lifetime. [4] Bell's palsy has a peak incidence between the ages of 15 and 40 years. Men and women are equally affected, although the incidence may be increased in pregnant women. [4]

AETIOLOGY/ RISK FACTORS

The cause of Bell's palsy is unknown, but it is thought that reactivated herpes viruses from the geniculate ganglion of the facial nerve may play a key role in the development of this condition. Herpes simplex virus (HSV)-1 has been detected in up to 50% of cases by some researchers; [6] however, one study demonstrated viral replication (HSV, herpes zoster virus [HZV], or both) in <20% of cases. [7] Herpes zoster-associated facial palsy more frequently presents as zoster sine herpete (without vesicles), although 6% of people will subsequently develop vesicles (Ramsay Hunt syndrome). [6] Thus, treatment plans for the management of Bell's palsy should recognise the high incidence of HZV, which is associated with worse outcomes. [8] Inflammation of the facial nerve initially results in reversible neuropraxia, but Wallerian degeneration may occur.

PROGNOSIS

Overall, Bell's palsy has a fair prognosis without treatment. Clinically important improvement occurs within 3 weeks in 85% of people and within 3 to 5 months in the remaining 15%. [4] People failing to show signs of improvement by 3 weeks may have suffered severe degeneration of the facial nerve, or may have an alternative diagnosis that requires identification by specialist examination or investigations, such as CT or MRI. Overall, 71% of people will fully recover facial muscle function (61% of people with complete palsy, 94% of people with partial palsy). [4] The remaining 29% are left with mild to severe residual facial muscle weakness, 17% with contracture, and 16% with

hemifacial spasm or synkinesis. [4] Incomplete recovery of facial expression may have a long-term impact on quality of life. The prognosis for children with Bell's palsy is generally good, with a high rate (>90%) of spontaneous recovery, in part because of the high frequency of partial paralysis. [4] However, children with complete palsies may suffer poor outcomes as frequently as adults. [9]

AIMS OF INTERVENTION To prevent progression from partial to complete facial palsies; to maximise the speed of recovery; to increase the proportion of people making a full recovery; to reduce the incidence of motor synkinesis and contracture; to avoid morbidity to the eye; with minimum adverse effects.

OUTCOMES **Recovery of motor function:** grade of recovery of motor function of the face at 12 months (or study end when clearly stated); **presence of sequelae** at 12 months including motor synkinesis, autonomic dysfunction, hemifacial spasm; **time to recovery** including time to full recovery; impact on quality of life; **adverse effects** of treatment.

METHODS *Clinical Evidence* search and appraisal June 2010. The following databases were used to identify studies for this systematic review: Medline 1966 to June 2010, Embase 1980 to June 2010, and The Cochrane Database of Systematic Reviews, June 2010 (online) (1966 to date of issue). When editing this review we used The Cochrane Database of Systematic Reviews 2010, Issue 2. An additional search within The Cochrane Library was carried out for the Database of Abstracts of Reviews of Effects (DARE) and Health Technology Assessment (HTA). We also searched for retractions of studies included in the review. Abstracts of the studies retrieved from the initial search were assessed by an information specialist. Selected studies were then sent to the contributor for additional assessment, using predetermined criteria to identify relevant studies. Study design criteria for inclusion in this review were: published systematic reviews of RCTs and RCTs in any language, at least single blinded, and containing >20 individuals of whom >80% were followed up. There was no minimum length of follow-up required to include studies. We excluded all studies described as "open", "open label", or not blinded unless blinding was impossible. We included systematic reviews of RCTs and RCTs where harms of an included intervention were studied applying the same study design criteria for inclusion as we did for benefits. In addition we use a regular surveillance protocol to capture harms alerts from organisations such as the FDA and the MHRA, which are added to the reviews as required. To aid readability of the numerical data in our reviews, we round many percentages to the nearest whole number. Readers should be aware of this when relating percentages to summary statistics such as relative risks (RRs) and odds ratios (ORs). We have performed a GRADE evaluation of the quality of evidence for interventions included in this review (see table, p 22). The categorisation of the quality of the evidence (high, moderate, low, or very low) reflects the quality of evidence available for our chosen outcomes in our defined populations of interest. These categorisations are not necessarily a reflection of the overall methodological quality of any individual study, because the Clinical Evidence population and outcome of choice may represent only a small subset of the total outcomes reported, and population included, in any individual trial. For further details of how we perform the GRADE evaluation and the scoring system we use, please see our website (www.clinicalevidence.com).

QUESTION What are the effects of drug treatments for Bell's palsy in adults and children?

OPTION CORTICOSTEROIDS

- For GRADE evaluation of interventions for Bell's palsy, see table, p 22 .
- Corticosteroids alone improve rate of recovery and the proportion of people who make a full recovery, and reduce cosmetically disabling sequelae, motor synkinesis, and autonomic dysfunction compared with placebo or no treatment.
- Good evidence exists that corticosteroid therapy improves facial palsy in people with Bell's palsy independent of severity at presentation. Treatment is likely to be more effective when started within 72 hours of onset, and less effective after 7 days.
- Contraindications to corticosteroid therapy exist and adverse effects are more likely following 7 days of treatment.
- The potential adverse effects of corticosteroid treatment are well documented; diabetes, hypertension, glaucoma, psychosis, fluid and electrolyte disturbances, gastrointestinal tract haemorrhage, and aseptic necrosis of the hip. The high incidence of abnormal glucose tolerance in people with Bell's palsy warrants special caution.

Benefits and harms

Corticosteroids versus placebo or no specific treatment:

We found two systematic reviews (search dates 2008 [10] and 2009 [11]) comparing corticosteroids versus placebo or no specific treatment using different inclusion criteria. We also report the outcomes of the two large RCTs [12] [13] (included in both systematic reviews) that have enabled the meta-analyses and influenced the changed treatment recommendations in this area.

Recovery of motor function

Compared with placebo or no specific treatment Corticosteroids are more effective at recovering facial motor function at 6 to 12 months (high-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[10] Systematic review	1507 people 7 RCTs in this analysis	**Proportion of people with incomplete recovery of facial motor function , 6 to 9 months** 175/754 (23%) with corticosteroids 245/753 (33%) with placebo/no treatment	RR 0.71 95% CI 0.61 to 0.83	●○○	corticosteroids
[11] Systematic review	1285 people 10 RCTs in this analysis	**Proportion of people with unsatisfactory recovery** 102/629 (16%) with corticosteroids 245/656 (37%) with control	RR 0.69 95% CI 0.55 to 0.87 P = 0.001 NNT 11 95% CI 8 to 25	●○○	corticosteroids
[12] RCT **4-armed trial**	551 people with Bell's palsy, moderate to severe weakness In review [10] [11] The remaining arms assessed aciclovir (400 mg five times daily), and prednisolone (50 mg/day) plus aciclovir (400 mg five times daily)	**Proportion of people with complete recovery , 9 months** 237/251 (94%) with prednisolone (50 mg/day) 200/245 (82%) with placebo All participants started treatment within 72 hours (54% within 24 hours) Complete recovery defined as House-Brackmann grade 1. Final outcome data were available for 496/551 (90%) people	OR 3.32 95% CI 1.72 to 6.44 P <0.001 ARR +12.8% 95% CI +7.2% to +18.4% P <0.001 NNT 8 95% CI 6 to 14	●●○	prednisolone
[13] RCT **3-armed trial**	839 people with Bell's palsy, moderate to severe weakness In review [10] [11] The remaining arm assessed valaciclovir (1000 mg three times a day for 7 days)	**Proportion of people with fully recovered facial function , 12 months** 300/416 (72%) with prednisolone (60 mg/day for 5 days then a 5-day taper) 237/413 (57%) with placebo Treatment started within 72 hours of palsy onset Fully recovered facial function = Sunnybrook score of 100 points	ARR 15% 95% CI 8% to 21% P <0.0001	○○○	prednisolone

Time to recovery

Compared with placebo or no specific treatment Prednisolone is more effective at reducing the time to recovery of facial nerve function (high-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Time to recovery					
[13] **3-armed trial**	839 people with Bell's palsy, moderate to severe weakness In review [10] [11] The remaining arm assessed valaciclovir (1000 mg three times a day for 7 days)	**Median time to recovery** 75 days with prednisolone 104 days with placebo Treatment started within 72 hours 829 people analysed Fully recovered facial function = Sunnybrook score of 100 points	HR 1.40 95% CI 1.18 to 1.64 P <0.0001	●○○	prednisolone

No data from the following reference on this outcome. [10] [11] [12]

Presence of sequelae

Compared with placebo or no specific treatment Corticosteroids are more effective at reducing cosmetically disabling sequelae, motor synkinesis, and autonomic dysfunction than placebo or no specific treatment at 6 to 12 months, but are less effective at improving quality of life (moderate-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Presence of sequelae					
[10] Systematic review	901 people 3 RCTs in this analysis	**Synkinesis and autonomic dysfunction** 56/455 (12%) with corticosteroids 92/446 (21%) with placebo/no treatment	RR 0.60 95% CI 0.44 to 0.81 P = 0.0008	●○○	corticosteroids
[11] Systematic review	Number of people not reported	**Synkinesis and autonomic dysfunction** with corticosteroids with control Absolute results not reported	RR 0.48 95% CI 0.36 to 0.65 P <0.001 NNT 7 95% CI 6 to 10	●●○	corticosteroids
[12] RCT **4-armed trial**	551 people with Bell's palsy, moderate to severe weakness In review [10] [11] The remaining arms assessed aciclovir (400 mg five times daily), and prednisolone (50 mg/day) plus aciclovir (400 mg five times daily)	**Quality of life** with prednisolone with placebo Absolute results not reported All participants started treatment within 72 hours (54% within 24 hours)	P = 0.04	○○○	placebo
[13] RCT **3-armed trial**	839 people with Bell's palsy, moderate to severe weakness In review [10] [11] The remaining arm assessed valaciclovir (1000 mg three times a day for 7 days)	**Synkinesis , 12 months** 51/370 (14%) with prednisolone 107/373 (29%) with placebo Treatment started within 72 hours	ARR –15% 95% CI –21% to –9% P <0.0001	○○○	prednisolone

Adverse effects

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Adverse effects					
[10] Systematic review	Number of people not reported	**Adverse effects** with corticosteroids with placebo/no treatment Absolute results not reported	The review did not pool results of adverse effects data; see further information on studies		
[11] Systematic review	Number of people not reported	**Major adverse effects** with corticosteroids with control Absolute results not reported	RR 0.56 95% CI 0.09 to 3.39 P = 0.44	⟷	Not significant
[11] Systematic review	Number of people not reported	**Minor adverse effects** with corticosteroids with control Absolute results not reported	RR 1.23 95% CI 0.93 to 1.64 P = 0.15	⟷	Not significant
[12] [13] RCT	1390 people	**Minor adverse effects** with prednisolone with placebo Absolute numbers not reported	Both large RCTs included in the reviews reported minor adverse effects in up to 11% of participants, but there was no significant difference between corticosteroids and placebo	⟷	Not significant

Corticosteroids versus aciclovir:

See option on antiviral treatment, p 6 .

Corticosteroids versus plus antiviral treatment versus either treatment alone:

See option on corticosteroids plus antiviral treatment, p 9 .

Further information on studies

[10] The review found that three included RCTs reported no adverse effects, one included trial reported that three participants receiving prednisolone suffered from temporary sleep disturbances, and 4 included trials gave a detailed account of 177 adverse effects, all of them non-serious, with no significant difference between those receiving corticosteroids and those receiving placebo.

Comment: None.

OPTION ANTIVIRAL AGENTS

- For GRADE evaluation of interventions for Bell's palsy, see table, p 22 .
- Antiviral treatment alone is no more effective than placebo and is less effective than corticosteroid treatment at improving recovery of facial motor function and at reducing the risk of disabling sequelae.

Benefits and harms

Antiviral agents versus placebo:

We found two systematic reviews (search date 2009, 7 RCTs, 1987 people; [14] and search date 2009, 18 RCTs, 7 of which are reported in the first review, 2786 people [11]), which compared antiviral treatment versus placebo or corticosteroids.

Recovery of motor function

Compared with placebo Antiviral treatment is no more effective at increasing the rate of complete recovery at the end of treatment (high-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[14] Systematic review	1228 people 5 RCTs in this analysis	**Proportion of people with incomplete recovery , end of trial** 73/625 (11%) with antivirals 95/603 (16%) with placebo	RR 0.71 95% CI 0.48 to 1.05 P = 0.08	⟷	Not significant
[14] Systematic review	631 people included in the 2 largest trials in the review 2 RCTs in this analysis Subgroup analysis	**Proportion of people with incomplete recovery , end of trial** 101/303 (33%) with antivirals 91/328 (28%) with placebo	RR 1.14 95% CI 0.80 to 1.62 P = 0.48	⟷	Not significant

No data from the following reference on this outcome. [11]

Presence of sequelae

Compared with placebo Antiviral treatment may be no more effective than placebo at reducing the risk of motor synkinesis or crocodile tears at the end of treatment (moderate-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Presence of sequelae					
[14] Systematic review	99 people Data from 1 RCT	**Motor synkinesis or crocodile tears** 7/53 (13%) with antivirals 13/46 (28%) with placebo	RR 0.47 95% CI 0.20 to 1.07 P = 0.07	⟷	Not significant
[11] Systematic review	Number of people not reported 2 RCTs in this analysis	**Motor synkinesis or crocodile tears** with antivirals with placebo Absolute results not reported	RR 0.75 95% CI 0.51 to 1.11 P = 0.15	⟷	Not significant

Time to recovery

No data from the following reference on this outcome. [14] [11]

Adverse effects

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Adverse effects					
[14] Systematic review	1544 women 3 RCTs in this analysis	**Adverse effects** 97/774 (13%) with antivirals 92/770 (12%) with placebo	RR 1.06 95% CI 0.81 to 1.38 P = 0.67	⟷	Not significant
[11] Systematic review	Number of people not reported	**Major adverse effects** with antivirals with placebo Absolute results not reported The review did not use a subgroup analysis for antivirals versus placebo, so these results are based on all antiviral trials in the review	RR 0.97 95% CI 0.27 to 3.74 P = 0.67	⟷	Not significant
[11] Systematic review	Number of people not reported	**Minor adverse effects** with antivirals with placebo Absolute results not reported The review did not use a subgroup analysis for antivirals versus placebo, so these results are based on all antiviral trials in the review	RR 1.02 95% CI 0.79 to 1.33 P = 0.87	⟷	Not significant

Antiviral agents versus corticosteroids:

We found two systematic reviews (search date 2009, 7 RCTs, 1987 people; [14] and search date 2009, 18 RCTs, 7 of which are reported in the first review, 2786 people [11]), which compared antiviral treatment versus placebo or corticosteroids.

Recovery of motor function

Compared with corticosteroids Antiviral treatment increases the risk of incomplete recovery at the end of treatment (high-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[14] Systematic review	768 people 3 RCTs in this analysis	**Proportion of people with incomplete recovery , end of trial** 113/384 (29%) with antivirals 58/384 (15%) with corticosteroids	RR 2.82 95% CI 1.09 to 7.32 P = 0.03	●●○	corticosteroids

No data from the following reference on this outcome. [11]

Presence of sequelae

Compared with corticosteroids Antiviral treatment may be as effective as corticosteroids at reducing the risk of motor synkinesis or crocodile tears at the end of treatment (low-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Presence of sequelae					
[14] Systematic review	101 people Data from 1 RCT	**Motor synkinesis or crocodile tears** 13/54 (24%) with antivirals 11/47 (23%) with corticosteroids	RR 1.03 95% CI 0.51 to 2.07 P = 0.94	⟷	Not significant

No data from the following reference on this outcome. [11]

Time to recovery

No data from the following reference on this outcome. [14] [11]

Adverse effects

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Adverse effects					
[14] Systematic review	667 people 2 RCTs in this analysis	**Adverse effects** 42/330 (12.7%) with antivirals 45/337 (13.4%) with corticos-teroids	RR 0.96 95% CI 0.65 to 1.14 P = 0.82	⟷	Not significant

No data from the following reference on this outcome. [11]

Antiviral agents plus corticosteroids versus either treatment alone:
See option on corticosteroids plus antiviral treatment, p 9 .

Further information on studies

[11] The second review supported the findings of the first review in rates of incomplete facial recovery for antiviral agents versus placebo, as it analysed the same two large RCTs assessed by the first review.

Comment: In pregnant women, antiviral treatments such as aciclovir should only be prescribed under the guidance of an obstetrician. Aciclovir requires 5 times daily dosing and demonstrates poorer bioavailability than valaciclovir (a prodrug of aciclovir), [15] which has shown greater effectiveness in the management of shingles.

OPTION CORTICOSTEROIDS PLUS ANTIVIRAL TREATMENT

- For GRADE evaluation of interventions for Bell's palsy, see table, p 22 .
- For people with paresis at presentation (about 70%), there is no evidence of a clinically important additive effect of adding antivirals to corticosteroid therapy.

- For people who develop paralysis (about 30%), and may demonstrate a trend towards complete degeneration on electrophysiological testing, it is unknown whether adding antiviral treatment to corticosteroid therapy has a significant additive or synergistic effect.
- People presenting with complete facial paralysis should be offered a choice of combination therapy with a corticosteroid and antiviral, because the evidence for therapy without antivirals is not yet definitive for this group and antivirals have few adverse effects.

Benefits and harms

Corticosteroids plus antiviral treatment versus placebo/no treatment:

We found three systematic reviews (search dates 2009 [14] [11] [16]), which assessed the effects of corticosteroids plus antiviral treatment compared with placebo, no treatment, or either corticosteroids or antivirals alone in people with Bell's palsy. All the reviews included different RCTs in their meta-analyses, so we report all three here.

Recovery of motor function

Compared with placebo/no treatment Corticosteroids plus antiviral treatment are more effective at reducing the risk of incomplete recovery of facial function at the end of treatment (high-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[14] Systematic review	1987 people 7 RCTs in this analysis	**Proportion of people with incomplete recovery , end of trial** 51/330 (15%) with corticosteroids plus antiviral treatment 91/328 (28%) with placebo	RR 0.56 95% CI 0.41 to 0.76 P = 0.002	●●○	corticosteroids plus antiviral treatment

No data from the following reference on this outcome. [11] [16]

Presence of sequelae

No data from the following reference on this outcome. [14] [11] [16]

Time to recovery

No data from the following reference on this outcome. [14] [11] [16]

Adverse effects

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Adverse effects					
[14] Systematic review	658 people 2 RCTs in this analysis	**Adverse effects** 52/330 (16%) with corticosteroids plus antiviral treatment 45/328 (14%) with placebo	RR 1.15 95% CI 0.79 to 1.66 P = 0.46	⟷	Not significant

No data from the following reference on this outcome. [11] [16]

Corticosteroids plus antiviral treatment versus corticosteroids alone:

We found three systematic reviews (search dates 2009 [14] [11] [16]), which assessed the effects of corticosteroids plus antiviral treatment compared with placebo, no treatment, or either corticosteroids or antivirals alone in people with Bell's palsy. All the reviews included different RCTs in their meta-analyses, although they all had some RCTs in common, so we report all three here.

Recovery of motor function

Compared with corticosteroids alone Corticosteroids plus antiviral treatment do not seem more effective in reducing the risk of incomplete recovery of facial function at the end of treatment (moderate-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[14] Systematic review	1228 people 6 RCTs in this analysis	**Proportion of people with incomplete recovery** with corticosteroids plus antiviral treatment with corticosteroids alone Absolute results not reported There was significant heterogeneity in the included data and the antiviral regimen differed between studies	RR 0.64 95% CI 0.50 to 0.82	●○○	corticosteroids plus antiviral treatment
[11] Systematic review	1298 people 8 RCTs in this analysis	**Proportion of people with unsatisfactory facial recovery , end of trial** 88/662 (13%) with corticosteroids plus antiviral treatment 117/636 (18%) with corticosteroids alone	RR 0.75 95% CI 0.56 to 1.00 P = 0.05 Significance was borderline	●●○	corticosteroids plus antiviral treatment
[16] Systematic review	1145 people 6 RCTs in this analysis 5 RCTs were included in both previously reported reviews	**Proportion of people with partial facial recovery , longest follow-up time** 521/571 (91%) with corticosteroids plus antiviral treatment 506/574 (88%) with corticosteroids alone	OR 1.50 95% CI 0.83 to 2.69 P = 0.18 The OR favoured combination therapy in 4 trials, but the CIs crossed 1 in three of these trials. The 2 highest quality trials had ORs that were <1, favouring corticosteroids alone	⟷	Not significant
[17] RCT	829 people with severe palsy (House-Brackmann grade 5 or 6) In review [14] Subgroup analysis	**Proportion of people with complete recovery** 39/60 (65%) with valaciclovir (1 g three times daily for 1 week) plus prednisolone (for 10 days) 40/61 (66%) with corticosteroids alone Complete recovery defined as House-Brackmann grade 1	ARR –1% 95% CI –17% to +18% P = 1.00	⟷	Not significant
[18] RCT	174 people with severe palsy In review [14]	**Proportion of people with full recovery** 88/92 (96%) with valaciclovir (500 mg twice daily for 5 days) plus prednisolone (for 10 days) 71/82 (87%) with corticosteroids alone Full recovery defined as Yanagahara score 36/40 (approximately House-Brackmann grade 1)	P <0.05 This trial had a high withdrawal rate and other potential sources of bias were identified	○○○	valaciclovir plus prednisolone

Presence of sequelae

Compared with corticosteroids alone Corticosteroids plus antiviral treatment are as effective at reducing the risk of motor synkinesis or crocodile tears (moderate-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Presence of sequelae					
[14] Systematic review	99 people Data from 1 RCT	**Motor synkinesis or crocodile tears , end of trial** 7/53 (13%) with corticosteroids plus antiviral treatment 13/46 (28%) with corticosteroids alone	RR 0.47 95% CI 0.20 to 1.07 P = 0.07	⟷	Not significant

No data from the following reference on this outcome. [11] [16]

Time to recovery

No data from the following reference on this outcome. [14] [11] [16]

Adverse effects

No data from the following reference on this outcome. [14] [11] [16]

Corticosteroids plus antiviral treatment versus antiviral treatment alone:

We found three systematic reviews (search dates 2009 [14] [11] [16]), which assessed the effects of corticosteroids plus antiviral treatment compared with placebo, no treatment, or either corticosteroids or antivirals alone in people with Bell's palsy. All the reviews included different RCTs in their meta-analyses, so we report all three here.

Recovery of motor function

Compared with antiviral treatment alone Corticosteroids plus antiviral treatment are more effective at reducing the risk of incomplete recovery of facial function at the end of treatment (high-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[11] Systematic review	660 people 2 RCTs in this analysis	**Proportion of people with unsatisfactory facial recovery , end of trial** 51/330 (15%) with corticosteroids plus antiviral treatment 101/330 (31%) with antiviral treatment alone	RR 0.48 95% CI 0.29 to 0.79 P = 0.04	●●○	corticosteroids plus antiviral treatment

No data from the following reference on this outcome. [14] [16]

Presence of sequelae

No data from the following reference on this outcome. [14] [11] [16]

Time to recovery

No data from the following reference on this outcome. [14] [11] [16]

Adverse effects

No data from the following reference on this outcome. [14] [11] [16]

Further information on studies

Comment: We have reported the results of a number of recent systematic reviews with meta-analyses to demonstrate that trial selection may influence conclusions. Only the systematic reviews that incorporate small and historical trials seem to show potential benefit of combination therapy, and publication bias, with loss of negative trials, may be contributing to this finding. [19] Browning (2010) concluded that meta-analyses of combination therapy only suggest a marginal benefit when small poorer-quality trials are included and that antivirals (in combination with corticosteroids) should only be considered when a viral aetiology is suspected. [20] Debate continues about whether the recent multicentre trials were underpowered to demonstrate a benefit in the paralysis subgroup (complete facial palsy), that is, type II error. This concern is further exacerbated by significant variation in dosing of the antivirals in the included trials and particularly the variable bioavailability of aciclovir. Whether people with evidence of herpes zoster virus (HZV) replication (zoster sine herpete) or people with paralysis benefit from higher doses of antiviral drug requires further research. Even the maximum dose studied (valaciclovir 1 g three times daily) may only achieve 'partial inhibitory' concentrations for HZV. [21] In summary: The 'Scottish study' provides good evidence that aciclovir 2000 mg daily offers no significant additional benefit to corticosteroids for most patients. [12] The 'Swedish study' confirms that even a considerably higher dose of antivirals still seems not to offer benefit, [13] even when a subgroup analysis of severe palsies was undertaken. [17]

Clinical guide:
For most people with Bell's palsy with paresis at presentation (about 70%), there is no evidence of a clinically important additive effect of combination therapy (corticosteroid plus antivirals). For people with paralysis at presentation (about 30%), further research is required to assess whether combination therapy (antivirals plus corticosteroids) has a significant additive or synergistic effect. People with complete palsies or those with features suggestive of herpes zoster infection (i.e., zoster sine herpete) should be informed of the weak evidence of potential benefit from antivirals in addition to corticosteroids and be allowed to make an informed decision. Antiviral dosing would need to be adequate to treat HZV infection (e.g., 1 g valaciclovir three times daily).

OPTION HYPERBARIC OXYGEN THERAPY New

- For GRADE evaluation of interventions for Bell's palsy, see table, p 22 .
- Hyperbaric oxygen may improve time to recovery and the proportion of people who make a full recovery compared with corticosteroids; however, the evidence for this is weak.

Benefits and harms

Hyperbaric oxygen versus corticosteroids:

We found one double-blind RCT (79 people with Bell's palsy) comparing hyperbaric oxygen therapy (HBOT) plus placebo tablets (42 people) versus prednisolone plus placebo HBOT (dives achieving a normal partial pressure of oxygen only, 37 people). [22]

Recovery of motor function

Compared with corticosteroids Hyperbaric oxygen may be more effective at increasing complete recovery rates at 9 months (low-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[22] RCT	79 people with Bell's palsy	**Proportion of people with complete recovery of facial palsy** 40/42 (95%) with hyperbaric oxygen therapy (HBOT) 28/37 (76%) with prednisolone Prednisolone group also received placebo HBOT (dives achieving a normal partial pressure of oxygen only) HBOT was administered at 2.8 atmospheres for 60 minutes twice daily, 5 days a week, with dives discontinued when facial function returned to normal (maximum of 30 dives)	P value not reported		

Time to recovery

Compared with corticosteroids Hyperbaric oxygen may be more effective at reducing time to recovery (low-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Time to recovery					
[22] RCT	79 people with Bell's palsy	**Time to recovery** 22 days with hyperbaric oxygen therapy (HBOT) 34.4 days with prednisolone Prednisolone group also received placebo HBOT (dives achieving a normal partial pressure of oxygen only) HBOT was administered at 2.8 atmospheres for 60 minutes twice daily, 5 days a week, with dives discontinued when facial function returned to normal (maximum of 30 dives)	P <0.001	○○○	HBOT

Presence of sequelae

No data from the following reference on this outcome. [22]

Adverse effects

No data from the following reference on this outcome. [22]

Further information on studies

Comment: One prospective observational study (82 people receiving long-term hyperbaric oxygen therapy [HBOT] for chronic conditions) found that complications and adverse effects of HBOT included barotrauma to the ear, round window blowout, 'sinus squeeze', visual refractive changes, numb fingers, dental problems, and claustrophobia. Severe adverse effects tended to be rare but may require specific intervention (e.g., seizures, pulmonary oxygen toxicity, altered drug metabolism, and pneumothorax). People with known poor Eustachian tube function may warrant grommet insertion to reduce the risks of barotrauma to the ear. [23]

Clinical guide:
HBOT is expensive and the repeated therapies are inconvenient for the person. Grommet insertion will be required in some people. Further research is warranted and this might focus on people in whom corticosteroids are contraindicated or as adjuvant therapy with corticosteroids for dense facial palsy to try to decrease the rate of incomplete recovery.

QUESTION What are the effects of surgical treatments for Bell's palsy in adults and children?

OPTION FACIAL NERVE DECOMPRESSION SURGERY

- For GRADE evaluation of interventions for Bell's palsy, see table, p 22 .
- We don't know whether facial nerve decompression surgery is beneficial in Bell's palsy.

Benefits and harms

Facial nerve decompression versus no surgery:

We found one systematic review (search date 2000), which found no RCTs of facial nerve decompression surgery for people with Bell's palsy (see comment). [24]

Further information on studies

Comment: The systematic review found reports of permanent unilateral deafness in 4 non-randomised prospective studies of facial nerve decompression in people with Bell's palsy. [24] One case series that included 82 people with complete facial palsy having facial nerve decompression found that 4/41 (10%) people had conductive deafness and 2/41 (5%) people had sensory-neural deafness after 1 year. [25] We also found one multicentre, prospective, non-randomised, observational study, which compared total facial nerve decompression surgery versus no surgery. [26] All participants were treated with prednisolone and were offered surgery if serial electrophysiological testing showed severe nerve degeneration within 2 weeks of the onset of their palsy. The study found that there were significantly more complete recoveries with surgery plus prednisolone compared with prednisolone alone (31/34 [91%] with surgery plus prednisolone *v* 15/33 [42%] with prednisolone alone; P = 0.0002). Two people who had decompression surgery reported adverse effects; one person reported conductive hearing loss, and one person experienced a cerebrospinal fluid leak. No other

adverse effects for either group were reported. The study had significant recruitment problems and the numbers are clearly small; surgery was only performed in specialised centres.

QUESTION **What are the effects of physical treatments for Bell's palsy in adults and children?**

OPTION **FACIAL RETRAINING**

- For GRADE evaluation of interventions for Bell's palsy, see table, p 22 .
- Facial retraining may improve recovery of facial motor function scores including stiffness and lip mobility, and may reduce the risk of motor synkinesis in Bell's palsy, but the evidence is too weak to draw conclusions.

Benefits and harms

Facial retraining versus waiting list control:

We found two systematic reviews (search dates 2007 [27] and 2008 [28]), which assessed the effects of physiotherapies in people with Bell's palsy. In the first review (4 RCTs, 132 people), three of the included RCTs did not fulfil *Clinical Evidence* inclusion criteria (<20 people) and therefore will not be discussed further here. We report results from the remaining RCT below. [29] The second review (6 RCTs, including the RCT previously reported, 547 people with Bell's palsy) compared either electrostimulation or exercises versus waiting list control. [28] Only the three trials comparing exercises versus waiting list controls met the inclusion criteria for this review and we report their results below. One of the trials included people with acute Bell's palsy; in one trial published in Chinese the starting point is unclear (possibly Bell's palsy for <9 months); and one RCT included chronic patients with failure to recover at 9 months only).

Recovery of motor function

Compared with waiting list control Facial retraining using mime therapy or exercise may be more effective at improving facial function scores at 3 months, but may be no more effective at reducing the risk of incomplete recovery at 3 months after randomisation (low-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Recovery of motor function					
[29] RCT	48 people with peripheral facial paralysis for at least 9 months In review [27]	**Mean change in physical Facial Disability Index (FDI) score , 3 months** From 56.8 to 73.5 with mime therapy From 63.2 to 59.6 with waiting list control Improvement in social and physical aspects of facial disability were measured using the FDI questionnaire. The FDI uses a 100-point scale, with a higher score indicating less handicap and less impairment	P <0.02	○○○	mime therapy
[30] RCT	48 people with peripheral facial paralysis for at least 9 months In review [27]	**Mean change in social FDI scores** From 68.6 to 80.7 with mime therapy From 72.6 to 66.2 with waiting list control Improvement in social and physical aspects of facial disability were measured using the FDI questionnaire. The FDI uses a 100-point scale, with a higher score indicating less handicap and less impairment	P <0.01	○○○	mime therapy
[30] RCT	48 people with peripheral facial paralysis for at least 9 months	**Mean change in stiffness scores , 3 months** From 3.72 to 2.37 with mime therapy	P <0.001	○○○	mime therapy

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
	In review [27]	From 3.68 to 3.54 with waiting list control Facial stiffness was patient-assessed on a 5-point scale (1 = no stiffness and 5 = very stiff)			
[30] RCT	48 people with peripheral facial paralysis for at least 9 months In review [27]	**Mean change in pout score , 3 months** From 14.7 to 21.0 with mime therapy From 16.3 to 15.7 with waiting list control Lip mobility was physician-assessed by measuring the pout and lip-length indices	P <0.001	○○○	mime therapy
[30] RCT	48 people with peripheral facial paralysis for at least 9 months In review [27]	**Mean change in lip-length score , 3 months** From 17.6 to 23.7 with mime therapy From 21.6 to 19.6 with waiting list control Lip mobility was physician-assessed by measuring the pout and lip-length indices	P <0.03	○○○	mime therapy
[30] RCT	48 people with peripheral facial paralysis for at least 9 months In review [27]	**Mean social FDI score , 12 months** 81.6 with mime therapy immediately after treatment 83.6 with mime therapy at 3 months 85.3 with mime therapy at 12 months Improvement in social and physical aspects of facial disability were measured using the FDI questionnaire. The FDI uses a 100-point scale, with a higher score indicating less handicap and less impairment	P value not reported		
[30] RCT	48 people with peripheral facial paralysis for at least 9 months In review [27]	**Mean pout index , 12 months** 22.2 with mime therapy immediately after treatment 23.5 with mime therapy at 3 months 24.2 with mime therapy at 12 months Lip mobility was physician-assessed by measuring the pout and lip-length indices	P value not reported		
[28] Systematic review	34 people with chronic Bell's palsy Data from 1 RCT	**Recovery of facial grading** with exercises with waiting list control Absolute results not reported Facial grading measured by Sunnybrook scale (0 to 100 points), fully recovered facial function = Sunnybrook score of 100 points	Mean difference 20.40 95% CI 8.76 to 32.04	○○○	exercises

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
[28] Systematic review	34 people with chronic Bell's palsy Data from 1 RCT	**Recovery on the FDI social domain (0 to 100)** with exercises with waiting list control Absolute results not reported Improvement in social and physical aspects of facial disability were measured using the FDI questionnaire. The FDI uses a 100-point scale, with a higher score indicating less handicap and less impairment	Mean difference 14.50 95% CI 4.85 to 24.15	○○○	exercises
[28] Systematic review	34 people with chronic Bell's palsy Data from 1 RCT	**Recovery on the FDI physical domain** with exercises with waiting list control Absolute results not reported Improvement in social and physical aspects of facial disability were measured using the FDI questionnaire. The FDI uses a 100-point scale, with a higher score indicating less handicap and less impairment	Mean difference +10.30 95% CI –1.37 to +21.97	⟷	Not significant
[28] Systematic review	145 people; uncertain duration of Bell's palsy Data from 1 RCT	**Proportion of people with incomplete recovery , 3 months** 6/85 (7%) with exercises 7/60 (12%) with waiting list control	RR 0.61 95% CI 0.21 to 1.17	⟷	Not significant

Presence of sequelae

Compared with waiting list control Facial retraining exercises may be more effective at reducing the risk of motor synkinesis (low-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Presence of sequelae					
[28] Systematic review	145 people with chronic Bell's palsy Data from 1 RCT	**Motor synkinesis** 4/85 (5%) with exercises 12/60 (20%) with waiting list control	RR 0.24 95% CI 0.08 to 0.69	●●○	exercises

No data from the following reference on this outcome. [27]

Time to recovery

Compared with conventional treatment Facial retraining exercises may be more effective at reducing the mean time to beginning and completion of recovery (low-quality evidence).

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
Time to recovery					
[28] Systematic review	90 people with uncertain duration of Bell's palsy Data from 1 RCT	**Mean time to beginning of recovery (weeks)** with exercises	Mean difference –0.59 weeks 95% CI –1.01 to –0.17 weeks	○○○	exercises

Ref (type)	Population	Outcome, Interventions	Results and statistical analysis	Effect size	Favours
		with conventional treatment Absolute results not reported			
[28] Systematic review	90 people with uncertain duration of Bell's palsy Data from 1 RCT	**Mean time to complete recovery (weeks)** with exercises with conventional treatment Absolute results not reported	Mean difference –0.91 weeks 95% CI –1.49 to –0.34 weeks P = 0.01	○○○	exercises

No data from the following reference on this outcome. [27]

Adverse effects

No data from the following reference on this outcome. [27] [28]

Further information on studies

[27] The authors of the review concluded that because of lack of evidence it was not possible to conclude if physiotherapy was effective for the treatment of Bell's palsy.

Comment: **Clinical guide:**
There is limited evidence that physical facial retraining, such as mime therapy, can improve both the function and quality of life of people with long-standing facial nerve palsies. Optimal outcomes are likely to be achieved in a multidisciplinary clinic setting, which would facilitate coordination of medical, surgical, physical, and psychological services.

GLOSSARY

Hemifacial spasm is a generalised involuntary mass contracture of the facial muscles.

Neuropraxia is reversible nerve dysfunction without the degeneration or loss of nerve axons.

Ramsay Hunt syndrome is characterised by acute facial paralysis with herpetic (herpes zoster virus) blisters of the skin of the ear canal or tongue. Other symptoms may include vertigo, ipsilateral hearing loss, and tinnitus.

Wallerian degeneration describes the sequelae of axonal injury and subsequent removal of axonal and myelin debris by Schwann cells and invading macrophages.

High-quality evidence Further research is very unlikely to change our confidence in the estimate of effect.

Low-quality evidence Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Moderate-quality evidence Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

SUBSTANTIVE CHANGES

Hyperbaric oxygen therapy New option added with one RCT comparing hyperbaric oxygen versus corticosteroids. [22] The RCT found that a higher proportion of people completely recovered with hyperbaric oxygen compared with corticosteroids. It also reported that time to complete recovery was faster with hyperbaric oxygen. [22] Categorised as Unknown effectiveness, as there remains insufficient high-quality evidence to assess the effects of hyperbaric oxygen for people with Bell's palsy.

Antiviral agents Two systematic reviews added comparing antiviral agents versus placebo or corticosteroids. [14] [11] Both reviews found that antiviral treatment did not improve the rate of complete recovery at the end of treatment compared with placebo. [14] [11] The first review found no difference between antiviral treatment and placebo in the rate of motor synkinesis or crocodile tears. [14] The first review found that antiviral treatment increased the risk of incomplete recovery at the end of treatment compared with corticosteroids, but found no difference between these groups for motor synkinesis or crocodile tears. [14] Categorisation unchanged (Unlikely to be beneficial).

Corticosteroids Two systematic reviews added. [10] [11] Both reviews and two large RCTs included in the reviews found that corticosteroids improved rates of complete recovery of facial function and time to recovery, and decreased the risk of the presence of sequelae at 12 months or study end. Categorisation unchanged (Likely to be beneficial).

Corticosteroids plus antiviral treatment Three systematic reviews added, [14] [11] [16] which assessed the effects of corticosteroids plus antiviral treatment compared with placebo, no treatment, or either corticosteroids or antivirals alone in people with Bell's palsy. The first review found that corticosteroids plus antiviral treatment reduced the risk of incomplete recovery at trial end compared with either placebo or corticosteroids alone. [14] It also reported no significant difference in the proportion of people who had motor synkinesis or crocodile tears with corticosteroids plus antiviral treatment compared with corticosteroids alone. [14] The second review found that corticosteroids plus antiviral treatment reduced the risk of unsatisfactory facial recovery at end of treatment compared with either corticosteroids or antiviral treatment alone. [11] However, the third review found no significant difference in the proportion of people who had at least partial facial recovery at the longest term follow-up reported between corticosteroids plus antiviral treatment compared with corticosteroids alone. [16] Categorisation unchanged (Likely to be beneficial).

Facial retraining Two systematic reviews added. [27] [28] The reviews found that physiotherapy including exercise and mime therapy improved facial motor function scale scores, but made no difference to the proportion of people with complete recovery at 3 months after randomisation compared with control. [27] [28] The second review found that exercise reduced the risk of motor synkinesis and improved time to the beginning and completion of recovery compared with conventional treatment. [28] Categorisation unchanged (Unknown effectiveness), as there remains insufficient high-quality evidence to assess the effects of facial retraining for people with Bell's palsy.

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Competing interests: JH and JB declare that they have no competing interests.

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GRADE **Evaluation of interventions for Bell's palsy.**

Important outcomes			Presence of sequelae, Recovery of motor function, Time to recovery						
Studies (Participants)	Outcome	Comparison	Type of evidence	Quality	Consistency	Directness	Effect size	GRADE	Comment
What are the effects of drug treatments for Bell's palsy in adults and children?									
10 (1285) [10] [11] [13] [12]	Recovery of motor function	Corticosteroids versus placebo or no specific treatment	4	0	0	0	0	High	
1 (829) [13]	Time to recovery	Corticosteroids versus placebo or no specific treatment	4	0	0	0	0	High	
at least 3 (at least 901) [10] [11] [12] [13]	Presence of sequelae	Corticosteroids versus placebo or no specific treatment	4	–1	0	0	0	Moderate	Quality point deducted for incomplete reporting of results
5 (1228) [14]	Recovery of motor function	Antiviral agents versus placebo	4	0	0	0	0	High	
2 (at least 99) [14] [11]	Presence of sequelae	Antiviral agents versus placebo	4	–1	0	0	0	Moderate	Quality point deducted for sparse data
3 (768) [14]	Recovery of motor function	Antiviral agents versus corticosteroids	4	0	0	0	0	High	
1 (101) [14]	Presence of sequelae	Antiviral agents versus corticosteroids	4	–2	0	0	0	Low	Quality points deducted for sparse data and methodological weakness
7 (1987) [14]	Recovery of motor function	Corticosteroids plus antiviral treatment versus placebo/no treatment	4	0	0	0	0	High	
8 (1298) [14] [11] [16]	Recovery of motor function	Corticosteroids plus antiviral treatment versus corticosteroids alone	4	0	–1	0	0	Moderate	Consistency point deducted for conflicting results
1 (99) [14]	Presence of sequelae	Corticosteroids plus antiviral treatment versus corticosteroids alone	4	–1	0	0	0	Moderate	Quality point deducted for sparse data
2 (660) [11]	Recovery of motor function	Corticosteroids plus antiviral treatment versus antiviral treatment alone	4	0	0	0	0	High	
1 (79) [22]	Recovery of motor function	Hyperbaric oxygen versus corticosteroids	4	–2	0	0	0	Low	Quality points deducted for sparse data and incomplete reporting of results
1 (79) [22]	Time to recovery	Hyperbaric oxygen versus corticosteroids	4	–2	0	0	0	Low	Quality points deducted for sparse data and incomplete reporting of results
What are the effects of physical treatments for Bell's palsy in adults and children?									
2 (82) [27] [28]	Recovery of motor function	Facial retraining versus waiting list control	4	–2	0	0	0	Low	Quality points deducted for sparse data and incomplete reporting of results
1 (145) [28]	Presence of sequelae	Facial retraining versus waiting list control	4	–2	0	0	0	Low	Quality points deducted for sparse data and methodological weaknesses

Important outcomes		Presence of sequelae, Recovery of motor function, Time to recovery							
Studies (Participants)	Outcome	Comparison	Type of evidence	Quality	Consistency	Directness	Effect size	GRADE	Comment
1 (90) [28]	Time to recovery	Facial retraining versus waiting list control	4	–2	0	0	0	Low	Quality points deducted for sparse data and incomplete reporting of results

We initially allocate 4 points to evidence from RCTs, and 2 points to evidence from observational studies. To attain the final GRADE score for a given comparison, points are deducted or added from this initial score based on preset criteria relating to the categories of quality, directness, consistency, and effect size. Quality: based on issues affecting methodological rigour (e.g., incomplete reporting of results, quasi-randomisation, sparse data [<200 people in the analysis]). Consistency: based on similarity of results across studies. Directness: based on generalisability of population or outcomes. Effect size: based on magnitude of effect as measured by statistics such as relative risk, odds ratio, or hazard ratio.