



Canadian  
Paediatric  
Society

Français en page 112

## Perinatal brachial plexus palsy

Perinatal brachial plexus palsy (PBPP), also known as obstetrical brachial plexus palsy, is a flaccid paralysis of the arm at birth, affecting different nerves of the brachial plexus supplied by C5 to T1 in 0.42 to 5.1 infants per 1000 live births. A literature search on randomized controlled trials, systematic reviews and meta-analyses on prevention and treatment of PBPP was performed. The background data on which this statement is based are found in the article by Andersen et al (1).

There are no prospective studies on cause or prevention of PBPP. Whereas birth trauma is the most common cause, there is evidence suggesting that PBPP can occur before delivery. PBPP has been associated with shoulder dystocia, infants who are large for gestational age, maternal diabetes and instrumental delivery; however, there are no proven causative correlations. Recent evidence suggests that the natural history is not favourable for 20% to 30% of these infants because they will have residual deficits, which is in contrast to the previous estimates that greater than 90% will recover completely. If physical examination shows incomplete recovery by three to four weeks, full recovery is unlikely. There are no randomized controlled trials evaluating nonoperative management. There are also no randomized studies providing evidence that primary surgical exploration of the brachial plexus is preferable to conservative management for outcome. However, results from nonrandomized studies indicate that children with severe injuries may do better with surgical repair. Secondary surgical reconstructions are inferior to primary intervention, but can still improve arm function in children with serious impairment.

### RECOMMENDATIONS AND GUIDELINES

- To foster realistic parental expectations, it is important to provide a clear explanation of the nerve injury and its

### FETUS AND NEWBORN COMMITTEE (2004-2005)

**Members:** Drs Khalid Aziz, Department of Pediatrics (Neonatology), Janeway Children's Health and Rehabilitation Centre, St John's, Newfoundland and Labrador (board representative); Keith J Barrington, Royal Victoria Hospital, Montreal, Quebec (chair); Haresh Kirpalani, Children's Hospital – Hamilton HSC, Hamilton, Ontario; Shoo K Lee, BC's Children's Hospital, Vancouver, British Columbia; Koravangattu Sankaran, Royal University Hospital, Saskatoon, Saskatchewan; John Van Aerde, Walter Mackenzie Health Sciences Centre, Edmonton, Alberta (1998-2004); Robin Whyte, IWK Health Centre, Halifax, Nova Scotia

**Liaisons:** Drs Lillian Blackmon, University of Maryland School of Medicine, Baltimore, Maryland (USA) (Committee on Fetus and Newborn, American Academy of Pediatrics); Catherine McCourt, Health Surveillance and Epidemiology, Health Canada, Ottawa, Ontario (Health Canada); David Price, Hamilton, Ontario (Fetus and Newborn Committee, College of Family Physicians of Canada); Alfonso Solimano, BC Children's Hospital, Vancouver, British Columbia (Neonatal-Perinatal Medicine Section, Canadian Paediatric Society); Ms Amanda Symington, Hamilton Health Sciences Centre – McMaster Site, Hamilton, Ontario (Neonatal nurses)

**Principal authors:** Drs John Van Aerde, Stollery Children's Hospital, Edmonton, Alberta; John Andersen, Stollery Children's Hospital, Edmonton, Alberta; Joe Watt, Stollery Children's Hospital, Edmonton, Alberta; Jaret Olson, Stollery Children's Hospital, Edmonton, Alberta

potential sequelae. This should include the following information:

- PBPP is not always preventable.
- 75% of infants recover completely within the first month of life.
- 25% experience permanent impairment and disability.
- If the physical examination shows incomplete recovery by the end of the first month, referral to a multidisciplinary brachial plexus team should be made. The team should include neurologists and/or physiatrists, rehabilitation therapists and plastic surgeons.
- Because there are no randomized controlled trials evaluating nonsurgical management versus primary surgical exploration, decisions for primary surgical exploration versus nonsurgical management and prediction of prognosis have to be based on history, electrodiagnostic procedures, diagnostic imaging and physical examination by the multidisciplinary team.
- Secondary soft tissue and bone reconstructive surgery may improve function in children with significant impairment, but is inferior to primary intervention.
- Further research is needed to prevent injury, to improve predictive indicators of natural recovery, and to establish better criteria for surgery, nonoperative management and measurement of outcome.

### REFERENCE

1. Andersen J, Watt J, Olson J, Van Aerde J. Perinatal brachial plexus palsy. *Paediatr Child Health* 2006;11:93-100.

The recommendations in this statement do not indicate an exclusive course of treatment or procedure to be followed. Variations, taking into account individual circumstances, may be appropriate.

Correspondence: Canadian Paediatric Society, 2305 St Laurent Boulevard, Ottawa, Ontario K1G 4J8. Telephone 613-526-9397, fax 613-526-3332, Web sites [www.cps.ca](http://www.cps.ca), [www.caringforkids.cps.ca](http://www.caringforkids.cps.ca)