Function in unaffected arms of children with obstetric brachial plexus palsy

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**Discussion:**

Obstetric brachial plexus palsy (OBPP) occurs when the brachial plexus of an infant is injured during labor. Usually this phenomenon is unilateral, but on very rare occasions it can occur bilaterally as well. Where the injury happens in the brachial plexus correlates with what deficits you see in a child’s motor and sensory abilities. Many of these affected children end up having movement limitations or restrictions in the affected arm, so they usually end up using the unaffected arm more.

Typically, the studies out there focus on the affected upper extremity. It is unique because it focuses on the unaffected upper extremity, aiming to see if there is any difference between the unaffected upper extremity of a child with OBPP as opposed to the dominant upper extremity of a child who is developing typically and does not have OBPP. They did this by looking at both fine and gross motor skills, grasp strengths and pinch strengths. This study looked at 53 children with OBPP and 51 children without OBPP, all between the ages of 4-13 years of age.

Gross motor function was assessed by looking at the box-block test (BBT). Fine motor function was assessed by observing the nine-hole peg test (9HP). Grasp strength was looked at by using the Jamar hand dynamometer and pinch strength by the Jamar pinch meter.

Results: There was not any difference in the grasp and pinch strength between either group, but there was significant difference in both the BBT and 9HP tests between testing groups. Specifically, children 4-8 years old that had OBPP were significantly slower at utilizing their unaffected upper extremity that those children in the typically developmentally normal group. However, there was no difference in the 9-13 years old groups.

The researchers concluded that while there is a difference between the functional abilities of fine and gross motor skills in the 4-8 year olds, the differences between the groups seem to disappear when the children grow up. Essentially, their unaffected arms catch up to the dominant arms of typical development children.

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**Discussion Points:**

1. Review the different nerve roots included in the brachial plexus. Ask yourself, “If \_\_\_ root is affected, what should I see clinically?”
2. How might this obstetric injury happen?
3. Put yourself in a physiatrist’s shoes. What would you do to help a child with OBPP?
4. Why do you think the unaffected arm in the child with OBPP is slower functionally than the dominant arm in a child without OBPP?
5. Describe the box-block test and the nine-hold peg tests. What other tests could you do to assess gross and fine motor abilities if you didn’t have these tests available?
6. In your opinion, what would be the “next step” study if you had to design a follow-up study?