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Editorial Open Access

Predictors of Language Outcome for Children Born Preterm: Implications for Early Intervention

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Editorial

There is ample evidence that children who are born preterm are at risk for language impairment [1-3]. However, not all children who are born preterm will experience difficulty developing language. Why some children have a language impairment and others do not may be owed to the presence of certain risk factors, as well as the absence of particular protective factors. It is possible that different combinations of risk and protective factors may result in negative or positive outcomes for the child born preterm.

For the past few years, the research efforts in our laboratory have focused on examining the neurodevelopmental outcomes of children born preterm. Parents and their children, who were born preterm, come to our laboratory once the children are 30 months of age to participate in assessments of language, cognition and motor skills. Several of the families that we have seen have expressed concern about their child's language development, suspecting a delay, and yet a significant number of these families have not pursued or received language intervention. This is not an isolated occurrence as other researchers have reported the lack of referral for children born preterm [4].

Several studies have been conducted to examine the biological and environmental factors which increase the risk of language impairment. There also have been studies conducted that have indicated protective factors which may reduce the likelihood of language impairment. An understanding of these risk and protective factors may guide researchers and clinicians as to which children should be receiving intervention as early as possible, such as from the Neonatal Intensive Care Unit (NICU) and upon release from the NICU.

Statistical and clinical significance have been reported by several researchers on the effect of Socioeconomic Status (SES) for predicting language outcomes when infants born preterm are toddlers [5]. Toddlers who were born preterm and who are being reared in homes of low SES, are more likely to display poorer language outcomes compared to those from higher income households. This difference was evident even when the two SES groups were matched for other important factors such as gestational age, birth weight, gender, and biomedical variables such as Chronic Lung Disease, right and left Intraventricular Hemmorrhage, and Periventricular Leukomalacia. Factors associated with birth in low SES environments, such as lack of prenatal care and maternal age, also differed significantly between groups and could have contributed to risk. In addition, being born male and the presence of a family history of language impairment have been found to be risk factors for negative language outcome [3]. In contrast, protective environmental factors associated with SES, such as increased years of maternal education and a two parent household, have been found to lead to better language outcomes for children born preterm [5,6].

Neurobiological factors also have been reported to be indicative of language impairment risk in children born preterm [7]. Specifically, the presence of White Matter Abnormalities (WMA) at term age in children born preterm have been found to be related to negative language outcome when the children are five years of age. Medical diagnoses may also be red flags for the need for early intervention. In our preliminary data, children with a diagnosis of Chronic Lung Disease (CLD), have exhibited a far greater incidence of language impairment compared to infants born preterm without a CLD diagnosis [8]. Finally, birth weight is a risk factor, with the lower the weight of the child, the greater the risk [3].

Prevention is one aspect of a speech-language pathologists' scope of practice in communication disorders that has been neglected [9]. Eliminating preterm birth through adequate prenatal care is one crucial step for prevention efforts. However, even in the best case scenario where there is adequate prenatal care, preterm birth occurs. Our efforts need to focus on providing the earliest care, beginning in the NICU, for reducing risk of language impairment. Waiting until a child is two years of age for diagnosis and intervention related to their language abilities is not early enough. This is evident from the finding that poor expressive and receptive language skills at two years of age are a significant predictor of poor expressive and receptive language skills at five years of age [7].

We now have several studies that provide converging evidence for some of the variables that serve as protective factors and some of the variables that elevate risk for language outcome in children born preterm. Until that day when early biologically-targeted interventions are available, we rely on behavioral interventions to increase positive language outcomes. One step toward increasing early intervention is to identify the risk and protective factors for each child. Clinicians should ask about environmental and biological risk and protective factors that have been found to impact outcome. These include WMA in imaging results, history of CLD, caregiver education, maternal age at the time of the child's birth, history of language impairment in the family, and number of parents in the household. An increased number of risk factors should be indicative of the need for the earliest intervention possible. Those risk factors that can be modified, such as low caregiver education, may be addressed through early intervention efforts that focus on increasing language stimulation in the home environment. Indeed, recent studies designed to begin intervention while the child is in the NICU or upon immediate dismissal have been found to be successful in alleviating future negative language outcomes [10-12]. Understanding the risk and protective factors can lead to more positive

language outcomes in these children and their families, who deserve the earliest intervention possible.

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