AUTISM SCIENCE DIGEST

Risperdal and Brain Shrinkage: A Warning for Autism Families

William J. Walsh, Ph.D.

Risperdal is an atypical antipsychotic medication developed for schizophrenia that is often prescribed for autistic children by mainstream doctors. Published research by McCracken and others has demonstrated that this medication can effectively reduce irritability and emotional meltdowns in autistics.[1] However, the safety of Risperdal has never been established for young children, and its impact on early brain development is unknown. Recent MRI studies have heightened these concerns due to strong evidence that atypical antipsychotic medications reduce brain cortex volumes.

The first warnings came from published reports of reduced cortical gray matter volumes and glial cell numbers in macaque monkeys after administration of atypical medications.[2-4] These results were especially significant since they were very similar to the findings from postmortem studies in schizophrenia.[5] The most decisive and troubling study was published in 2011 by Beng-Chung Ho and colleagues from the University of Iowa's Department of Psychiatry.[6] The Iowa researchers studied 211 schizophrenics who underwent repeated high-resolution MRI scans over a period of 5-14 years. They found brain shrinkage similar to that observed in the monkey studies, but also discovered that the brain volume loss was directly related to the dosage and duration of atypical medication treatment.

These results have caused great concern in the psychiatry community since atypicals have become the "treatment of choice" for schizophrenia patients. A February, 2011 editorial[7] in the prestigious *Archives of General Psychiatry* stated that the risk/reward ratio for use of atypicals may be far smaller than previously believed, and urged psychiatrists to "prescribe the minimal amount(s) needed" in

management of schizophrenia patients. The editorial also recommended increased use of non-pharmacological approaches and pursuit of alternate medications.

These disturbing findings do not prove that Risperdal causes brain shrinkage in autistic children, since similar experiments have never been performed for this population. However, the risk of Risperdal use in young children appears very real, especially for those who have not yet completed the brain development process. Risperdal's benefits for autism patients are very real, but limited to behavior improvements. It appears these benefits may come at an unacceptable price. The new findings of brain shrinkage after atypical medications make it very difficult to justify the use of Risperdal in autism.

1. McCracken JT, McGough J, Shah B (2002). Risperidone in children with autism and serious behavioral problems. N Engl J Med; 347:314–321.
2. Dorph-Peterson K-A, Pierri JN, Sun Z, Sampson AR, Lewis DA (2005). The influence of chronic exposure to antipsychotic medications on brain size before and after tissue fixation: a comparison of haloperidol and olanzapine in macaque monkeys. *Neuropsycopharmacology.* **30**(9): 1649-61.
3. Konopaske GT, Dorph-Peterson K-A, Pierri JN, Wu Q, Sampson AR, Lewis DA (2007). Effect of chronic exposure to antipsychotic medications on cell numbers in the parietal cortex of macaque monkeys. *Neuropsychopharmacology.* **32**(6): 1216-23.
4. Konopaske GT, Dorph-Peterson K-A, Sweet RA, Pierri JN, Zhang W, Sampson AR, Lewis DA (2008). Effect of chronic antipsychotic exposure on astrocyte and oligodendrocyte numbers in macaque monkeys. *Biol Psychiatry.* **63**(8): 759-765.
5. Harrison PJ, Lewis DA (2003). Neuropathology of schizophrenia. In: Hirsch S, Weinberger DR, eds. *Schizophrenia.* 2ns ed. Oxford, England: Blackwell Science Ltd (310-325).
6. Ho BC, Andersen NC, Ziebell S, Pierson R, Magnotta V (2011). Long-term antipsychotic treatment and brain volumes: A longitudinal study of first-episode schizophrenia. *Arch Gen Psych*. **68**(2): 128-137.
7. Lewis DA (2011). Antipsychotic medications and brain volume. Do we have cause for concern? (Editorial). *Arch Gen Psych*, **68**(2): 126-7.