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Short Communication

Pharmacotherapy and Drug Usage in Children

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Diagnosis of the myriad of mental disorders which can impact children can often be a complex and challenging task for any healthcare pediatrician. The disorders can range from attention deficient/hyperactivity (including autism), anxiety-related disorders, mood disorders (including depression) and borderline personality or disruptive behaviors including eating disorders. Often times the possible treatment and interventions for the individual may be more successful when a combination of pharmacotherapy (drug use) and psychotherapy (talk therapy) are used. The success of the treatment is often entirely based upon the practitioner's experience, application of those approaches reported in the literature for adults and use of Green's Psychopharmacology in Children and Adolescents (ISBN-13:9781975105600).

One of the major offerings in the sixth edition of Green's Psychopharmacology are well-organized guidelines for psychotropic drug dose-titration, maintenance, discontinuing, and even de-prescribing medications. It includes practical tips for managing adverse effects, including strategies to prevent or reverse metabolic changes such as obesity in children on psychotropic medications. The book offers reviews of medications used for non-FDA-approved indications and the supporting available evidence for off-label use in treating children and adolescents who have mental health disorders.

Since 80% of prescription medications are not approved by the FDA in the USA for use in children, fewer evidence-based studies in children exist (in contrast to adult studies). Complicating therapeutic approaches is strong stigma or mark of disgrace against using medication in treating pediatric mental illness. Most psychotropic medications are highly lipophilic (will dissolve in body fats) and pharmacokinetics (movement of drugs in the body) plays a large role in their successful interventions as the percentage of total body fat increases during the first year of life and then decreases gradually until puberty. The result is that children have different volumes of fat for drug storage at different ages. In general, children tend to clear medications more quickly than adults due to differences in drug metabolizing enzymes, liver mass effects (children have liver masses of 30 - 50% greater than adults), and have a more rapid renal clearance.

Perhaps unknown is that 5 - 10% of children in the USA are affected by ADHD (attention deficient hyperactivity disorder) with worldwide estimates of 366 million total (7.3 million children) currently. The USA has the highest rate of ADHD. Children can have comorbid issues with 25 - 30% having comorbid anxiety disorders and 20 - 25% having learning disorders. There is a 2:1 male to female ratio nationwide in the USA but rises to as high as 9:1 in mental health clinics. Stimulants like methylphenidate and amphetamine are the most widely used with 65 - 75% efficacy in controlling symptoms of ADHD and are available in immediate release and controlled release dosage forms. These medications do have several common side effects however: nausea, stomach upset, decreased appetite, insomnia and headache.

Non-stimulant medications for ADHD may be used but deliver differing results. These medications include bupropion, alpha 2 adrenergic agonists, and atomoxetine. Bupropion and atomoxetine medications are norepinephrine reuptake inhibitors. The alpha 2 adrenergic agonists (clonidine, guanfacine) may strengthen working memory by improving functional connectivity in the prefrontal cortex. Of importance, atomoxetine use must be monitored very closely because it has an FDA "Black Box" warning on its label due to its suicidality.

Suicide is the 3rd cause of death in children ages 10 - 19 according to recent surveys/literature publications and 90% of suicides in youth are associated with psychiatric illness. 35 - 50% of depressed children receiving care have made or will make a suicide attempt. Of note is that most children who committed suicide sought out or were initiated with treatment only 1 month prior to the event. The only FDA approved SSRI (selective serotonin uptake inhibitor) for depression in children age 8 and up is fluoxetine. If this does not work switching to another SSRI may work (citalopram, escitalopram and sertraline) although careful monitoring of any child on SSRI's must occur…particularly in the beginning of therapy.

OCD (obsessive-compulsive) disorder is estimated to be 2% worldwide (women are more prone to OCD) with China having the highest rate of OCD at 1.63% of the general population. No data specific to children and adolescents are available from recent surveys. OCD represents common, chronic and long-lasting disorders in which a person has uncontrollable, recurring thoughts (obsessions) and/or behaviors (compulsions) that he or she feels the urge to repeat over and over. These thoughts are driven by unwanted and intrusive obsessive thoughts that are never pleasurable or enjoyable. In contrast, non-OCD anxiety disorders are impulse controlled and more likely thought of as additive because of great pleasure from the activity. Long term this translates to fears, generalized anxiety disorder known as GDA, mixed anxiety and depression, social anxiety, panic disorder and agrophobia (fears of open or closed spaces). This non-OCD disorder can present in 10 - 20% of children and there are no FDA approved medications for treatment. Often times these individuals are best treated using psychotherapy (talk therapy) interventions.

Treatment of children with mental disorders is difficult but must have delicate care by the health care practitioner and the individual's caregiver or family member. It is possible to improve a child's quality of life who has mental challenges using pharmacotherapy and psychotherapy interventions.

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