Pharmacotherapy in Neurobehavioral Paediatrics

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Introduction

This book is aimed at anyone who works in the space of behavioural challenges in paediatric population as medical professional and must prescribe psychotropic medications to support their mental well-being, improve their functional capacity and build their neurodevelopment.

I have been thinking about writing this book for some time in order to help share the knowledge I have gathered, with early-career clinicians or those who are new to this field. I learnt from medical literature of evidence-based practice but also the clinical experiences I gained by working in this field within various Australian states' public and private clinics. I learned from my colleagues and the senior paediatricians and psychiatrists I worked with; above all, from the patients who were instrumental in demonstrating the complexities of pharmacological treatments for behavioural challenges in neurodivergent kids.

What I found as a paediatrician trained in 'general paediatric' field in current times is that during the whole training there was proportionately very limited time spent on the neurobehavioral challenges of childhood or mental health disease. However, once we are in the clinical practice in community setting, public or private sectors or both, most of the referrals to paediatricians these days are for behavioural challenges, mental health challenges or developmental delays; majority of which are associated with or resulting from neurodevelopmental differences. This increasing awareness of neurodiversity and mental challenges in our communities is leading to further need for upskilling and involvement of general

practitioners (GPs) and nurse practitioners (NPs) to support growing community need. All paediatric clinics in Australia, whether in the public or private sectors, have very long wait times due to high need-to-resource ratio.

The term 'neurodiversity' or 'neurodivergent' when used through this book is intended to reflect individuals' inherent neurobiological and physiological differences in processing data, experiencing senses, feeling emotions etc. I acknowledge that these terms were coined in the context of a social construct. However, in the absence of a better term, I would be using it through this book. I would like to propose the term 'neuro-bio-diversity' to more accurately reflect this complex concept in the context of science in the future!

I initially found it daunting during early years of private practice to be prescribing medications that impact brain function, physical health and emotions so deeply for young lives and their families. Particularly, as I was rather habituated to acute health care, fixing physical illnesses or injuries. Giving Morphine for pain or Vancomycin for staph infection didn't stir my conscience as it seemed to be essential interventions; but when it came to prescribing SSRI (selective serotonin re-uptake inhibitor) or stimulants, I felt unsure and uncomfortable despite their profound role in improving lives of millions. Following discussions with fellow registrars and early-career fellows, I realised that it was a common experience. Imagine if a general paediatrician trained in these fields and well versed in working with children, adolescents and families with complex needs can feel these stressors in prescribing psychotropic medications, then how much stress a GP or NP goes through in this process!

For me, the reason behind this fear was not based on facts, but rather on a lack of experience and understanding of these medications. Often the guidelines are there but they do not go through the range of complex clinical questions that come across in everyday paediatric practice. Guidelines often do not go through intricacies of intersectionality.

Currently there is vast research and evidence about various neurodevelopmental conditions in children and how to manage these, including medications that can be effective. However, I find that diagnoses are often discussed in silos; if there is a guideline on the

management of ADHD (attention deficit hyperactivity disorder), then it sticks to the medications useful for just ADHD. What if the same child has ADHD but also autism and explosive behaviours or trauma? In real clinical practice, children and young people we see have complex needs, and although as clinicians we tend to stratify their challenges in 'diagnostic' framework, for them these challenges are mix of their experiences, neurotype, environmental impact and emotional support systems (or lack thereof)!

I hope that, through this book, clinicians gain confidence and clarity in their pharmacotherapy approaches to neurobehavioral paediatrics, even in the early years as fellows or trainees.

By no means do I claim this book to be a guideline or recommendation. It is essentially a collection of observed clinical practice outcomes from various commonly used psychotropic medications in my paediatric practice. There can be variations in experiences of other clinicians, and not all may agree with every aspect of my clinical practice and observations; however, the majority of approaches outlined in this book are well supported by evidence.

If you find it helpful, you are very welcome to use it in your daily practice!

An important point to outline about the focus of this book: I am not going to discuss dosing for medication or all-inclusive lists of effects and side effects etc. This information is widely available in medication dosing and pharmacological materials. My intention is to present the nuanced knowledge gained through clinical practice, studies and experience over the years, into a short practical version to get to know these medications with more confidence, with a central rule of 'Do no harm'.

Let's put it this way, imagine you are captain of a team sport and only know a player like an acquaintance – just by name, characteristics and their role description, you can find it challenging to place them in the team. However, if you can know the player more closely as in, where they came from, how they operate best, which players they can best work with, what are their strengths/challenges and get to practice playing with them; then you will know exactly how to use their abilities within the team. Also don't underestimate the power of knowing your opponent well, more specific knowledge helps to curate your game plan. We are essentially going to try and

do that with this book – players are the medications, team is polypharmacy, you are the captain and patient's functional challenges are your opponent!

So, let's start practicing!

Contents

Abbreviations

ADHD	Attention deficit hyperactivity disorder
AuDHD	Co-occurring autism + ADHD
AE	Adverse effects
APA	American Psychiatric Association
BP	Blood pressure
CBT	Cognitive behavioural therapy
CNS	Central nervous system
CT	Combination therapy
DM	Diabetes mellitus
ECG	Electrocardiogram
FDA	U.S. Food and Drug Administration
GAD	Generalised anxiety disorder
GP	General practitioner
HbA1c	Glycated haemoglobin
HPA	Hypothalamic–pituitary–adrenal axis
ID	Intellectual disability
LFTs	Liver function tests
MAOI	Monoamine oxidase inhibitor
MRI	Magnetic resonance imaging
NDD	Neurodevelopmental disorders
ND	Neurodivergent
OCD	Obsessive–compulsive disorder
OT	Occupational therapy
PBS	Pharmaceutical Benefits Scheme (Australia)
PCOS	Polycystic ovarian syndrome

POTS	Postural orthostatic tachycardia syndrome
PTSD	Post-traumatic stress disorder
QTc	Corrected QT interval
RCT	Randomised controlled trial
SNRIs	Serotonin and noradrenaline reuptake inhibitors
sNRI	Selective noradrenaline reuptake inhibitor (atomoxetine group, author description)
SSRI	Selective serotonin reuptake inhibitor
TGA	Therapeutic Goods Administration (Australia)

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