

Attention deficit hyperactivity disorder in adults

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Abstract

Introduction: Attention deficit hyperactivity disorder (ADHD) is a disorder that begins in childhood, characterised by hyperactivity, inattentiveness and impulsivity. The disorder persists into adulthood but with some differences in the way it presents.

Methods: This case series included 29 adult patients from a metropolitan, office-based, private psychiatric consultant practice over a period of four years.

Results and Discussion: 72% were males and 28% were females, with a mean age of 28 years. Management involved biological, psychological and educational approaches. Stimulants, including dexamphetamine and methylphenidate, were mainstay in biological treatment and non-stimulant medications, such as, atomoxetine was used infrequently. Comorbidities such as substance abuse and mood disorders were common among the study group.

Conclusion: ADHD is an illness, the symptoms of which may persist into adulthood. With diagnosis of the disease and the use of stimulants, adjunctive medications as appropriate, and behavioural interventions the patients will obtain relief.

Attention deficit hyperactivity disorder (ADHD) is an illness characterised by inattention, hyperactivity and impulsivity. Diagnostic criteria for the disorder and a brief overview of the illness has been provided in the Diagnostic and Statistical Manual by the American Psychiatric Association (DSM-IV). International Classification of Diseases (ICD 10), too has this recorded as an illness. As an illness that begins in childhood, there was a view that the disorder did not persist into adulthood. However it is now well known that it persists into adulthood^{1,2,3}. It is due to the fact that the individual/s are able to control some aspects of the illness and/or the features of hyperactivity, which tends to attenuate.

This article deals with an overview of the attention deficit syndrome mainly from the perspective of adults, followed by an analysis of one of us (MP's) clinical experience of seeing mainly adult patients with ADHD.

Review of literature

According to Thome⁴, the description of "Fidgety-Phillip" by Heinrich Hoffman, a physician in Germany in 1846 was probably the first mention of ADHD (as we know today) in the medical literature. In the English literature, George Still⁵, is credited to have described the condition in 1902. He described 43 children who had a constellation of symptoms similar to that of the modern ADHD criteria. Although phenotypically accurate, he attributed it to a

lack of 'moral control'. He found that ADHD was more prevalent amongst children with cerebral issues, and that it also affected children with normal IQ. This supports current literature, that ADHD is a multifactorial disorder not always associated with lowered IQ⁶. Kramer and Pollnow described hyperkinetic syndrome in children in 1932⁷. This disorder was also called minimal brain dysfunction syndrome and the earlier versions of ADHD was called attention deficit disorder (ADD) (DSM-IV). A detailed overview of historical aspects of adult ADHD has been provided by Doyle⁸.

The American Academy of Paediatrics Subcommittee⁹ has detected rates from 6.9% to 10.3% depending on whether it is a school sample or community sample respectively.

It is considered that at least 50% of those diagnosed in childhood continue onto adulthood¹⁰.

It is sometimes thought that ADHD is a disorder present only in the Western European cultures. However, there are reports in the English literature reporting this problem from other parts of the globe.

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Yoshimasu et al¹¹ have explored ADHD in Japan and noted the multifactorial nature of this illness and the need for a holistic approach. Al-Haidar¹² described their experiences with ADHD in a child psychiatry clinic in Saudi-Arabia. A Korean community based study also reported children with ADHD¹³. Oncu B¹⁴ also described ADHD in a Turkish population. ADHD has also been explored in China¹⁵ and India¹⁶.

ADHD appears to have a high heritability index of about 0.8¹⁷ and as such, genetic links are being studied. However, at present there is no strong evidence for any one gene in particular although there are a few candidate genes which are gathering increasing evidence¹⁸. Within this arena, it is thought that a dopamine imbalance may be a causative/contributing in ADHD¹⁹.

Social factors alone are no longer thought to be a causative agent in ADHD pathophysiology. However, factors such as smoking during pregnancy leading to fetal hypoxia, premature delivery, lead or alcohol poisoning, and head injury have been implicated with ADHD²⁰.

The treatment of ADHD was serendipitously discovered by Bradley²¹. In Bradley's initial study, he sought to reduce post-tap headaches in normal children by administering benzedrine. The effect on headaches was negligible, however teachers noted remarkable improvement in certain children's school performance, and as such, a second trial was commenced, which showed Benzedrine's positive effects. However, medicating children was condemned after much skepticism, and benzedrine in ADHD took a low profile 'till the 60's, when children were found to be helped by methylphenidate. Antipsychotic medications too have been used in the past (and sometimes even now) in an attempt to reduce the symptoms of ADHD. Clonidine too is used in childhood ADHD.

Stimulants, such as dexamphetamine, and methylphenidate are considered to be the first line of medication in ADHD¹. Atomoxetine, which is a non stimulant medication, is also considered effective in ADHD²². Other medications are anti depressants,²³ mainly bupropion.

Non-drug interventions have also been promulgated as primary treatment strategies for ADHD. These have been well described by Weiss and Weiss¹. Other treatment modalities, if relevant and applicable include behavioural modification, educational interventions, dietary modification, cerebellar

stimulation, audio-visual entrainment, and coaching on life skills and adapting to the ADHD²⁴.

Materials and methods

Data from 29 patients with ADHD seen over a period of four years in a metropolitan, office-based, psychiatric private practice were analysed retrospectively. These were derived from approximately 350 patients that were seen by the principal author. The patients included those who were referred from other health professionals for specialist opinion, those who had self-diagnosed and were seeking confirmation and patients who were already diagnosed with ADHD and requiring continuing care. The case series provides a cross sectional overview of these patients. Data was obtained from the medical records.

Results and Discussion

The patient population consisted of 21 males and 8 females. The mean age was 37 years (SD 10) with the youngest patient being 19 years and the oldest patient being 63 years. The mean age at diagnosis was 28 years (SD 13). Some patients had not been diagnosed previously as their symptoms were predominantly of the inattentive type and did not show the classical hyperactivity.

Although those who were diagnosed as adults did have symptoms in their childhood, for one reason or another, they were not diagnosed. As they matured they have developed coping strategies. However, the manifestations related to the illness have continued to be problematic for these patients. Therefore, making a diagnosis itself, gives them a measure of relief because this helps them to understand their difficulties. Most of these patients have required the biological treatments to control the manifestations of the illness.

Table 1: Medications

Medication	N	%
Dexamphetamine	15	52
Methylphenidate	8	28
Atomoxetine	1	3
No Stimulant medication	5	17

The majority (52%) were on dexamphetamine, and 28% were on methylphenidate (Ritalin). Table 1 gives details of medication use. Dexamphetamine was the medication of choice for most patients, as it is available in the Pharmaceutical Benefits Scheme (PBS) in Australia, which provides medication at subsidised prices. Initially dexamphetamine was the

only medication available under the Pharmaceutical Benefits Scheme (PBS), which heavily subsidises the drug cost. Hence most patients were started on dexamphetamine. However recently, methylphenidate was also brought under this scheme. In one individual the stimulants were ceased due to the probably use of illicit substances coupled with a resurgence of a pre-existing delusional disorder. One patient was treated with the non-stimulant medication atomoxetine (Strattera), which is a relatively new treatment. The cost of atomoxetine is a major barrier to trial its use in the adult ADHD population since it is not yet a subsidised. Psychotropics used *concomitantly* include sodium valproate, sertraline, citalopram, venlafaxine, amitryptiline, oxazepam, diazepam, quetiapine, chlopromazine. Physical evaluation prior to initiating stimulant therapy is desirable. Pre-treatment workup for these patients included full blood examination, urea and electrolytes, liver function tests, thyroid function tests, an electrocardiogram.

Whilst there is a likelihood that the stimulants could be abused in the present series only two patients attempted to do so and became obvious through the strict monitoring systems we had in place. This is in keeping with the general understanding of those who treat the syndrome even among known persons with substance use disorders²⁸. The risk of misuse of stimulants will be minimised if proper precautionary measure are taken when prescribing the drugs. In view of the potential for the abuse of stimulants prescriptions for such medications should be carefully controlled with close liaison with the dispensing pharmacist.

ADHD is not a stand-alone disease. Psychiatric comorbidities were prevalent, being present in 23 patients, and of this, 14 patients had mood disorders (Table 2). There was a family history of ADHD in 13 patients (45%). It is important as clinicians, that we are aware that co-morbid conditions may exist.

Insert Table 2 Here

Table 2: Comorbidities

Comorbidities	N*	%
Substance Use	17	59
Mood Disorder	14	48
Other	7	24
No Co-morbidities	6	21

*Patients may have multiple comorbidities

ADHD responds well to stimulant medications, however there are a few patients who may not require medications in the management of their illness. There were five patients (17%) who chose not to use medications, primarily of their own choice. Once the illness was explained, these patients were comfortable to not take medication and they were able to cope with the symptoms.

Conclusion

From our review of the literature it is noted that the symptoms of ADHD have been reported since the 19th century, it is prevalent in many parts of the world, and for which medication has been used from the 20th century. ADHD is a disorder which begins in childhood and may persist into adulthood. Various etiological theories exist, though none have been proven. Pharmacological treatment is usually with stimulants and is effective and most often are required. They need to be complemented by behavioural techniques and removal of known precipitants.

Case Study

Mrs X, is a 46 year old married, professional, lady with two children, who was referred with a history of chronic back pain, opiate and alcohol dependence, and depression. Further elucidation of her history revealed that she had distractibility, impulsivity and difficulties with coping. She was diagnosed for the first time with ADHD at that juncture. She responded well to methylphenidate (Ritalin). Although she abused the other substances, the Ritalin was not misused. On further evaluation it later became evident that both of her children suffered with ADHD and in fact she thought that even her aged mother may have suffered with the same syndrome. Although she had a high IQ and had achieved a high status in her professional life she confessed that these were achieved with a great deal of difficulty due to a lack of focus, primarily. She reported that the impulsivity and distractibility were greatly reduced with the stimulant therapy. Effective treatment of her ADHD and some changes to her lifestyle has helped her to remain abstinent from alcohol and other substances of dependence, and resolved the tensions that had occurred between herself and her husband who is also a professional. He has vouched for the veracity of her story.

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Appendix 1: Clinical Practice Points

- Diagnosis needs to be made with history and collateral information.
- Some patients have primary symptoms of inattention and impulsivity with minimal hyperactivity.
- In the adult patient, get retrospective information about childhood behaviour to detect the presence of symptoms during childhood.
- Although the history is of prime importance there are ancillary investigations such as computerized tomography (CT) and cerebral imaging techniques which are available that are complementary diagnostic aids to the history
- Baseline investigations including full blood examination, urea and electrolytes, liver function tests, electrocardiogram and thyroid function tests.
- Illness education for the patient and significant others.
- Due precautions to be used when prescribing stimulant medications.
- Close monitoring and titrating the dose of stimulants.
- Psychological interventions in addition to medication.
- Avoidance of known precipitants e.g. allergens etc.