DEPRESSION AND SUICIDALITY IN ADOLESCENTS AND CHILDREN – SHOULD OUTPATIENT KETAMINE INFUSION BE CONSIDERED?

Maria Dobreva

Depression is a common mental health disorder in children and adolescents. The prevalence is around 3% in younger children and about 8% in adolescents. The prevalence of depression in this age group is increasing and is often underreported and underdiagnosed in younger children.

Clinical severity can vary, and childhood depression can present in a number of ways. Major depressive disorder (MDD) is associated with functional impairment in the crucial phase of childhood development.

Risk factors for childhood depression are multiple. They include a positive family history of depression, previous history of depression or suicide, concomitant mental health disorders, chronic medical illnesses, obesity, body image disorders, female gender, child abuse or neglect, adverse childhood experiences, poor school performance, loss of family member or loved one, low socioeconomic status, uncertainty about sexual orientation, break up of a romantic relationship, family problems and other adverse childhood experiences (ACE) at a younger age, with multiple ACE's leading to more severe depression.

Children with depression can have concomitant mental disorders like anxiety, conduct disorder, oppositional defiant disorder, ADHD, or substance use disorder. Early diagnosis and effective treatment of depression in children is paramount.

Globally, suicide rates among children and adolescents are increasing. They have surpassed deaths due to MVA's. 7 in 100 000,00 children die of suicide. More than 80% of children who attempt suicide are not identified as 'at risk' by paediatricians in routine visits months before the suicide attempt. Hence, depression and suicide in children constitute a major global public health problem.

According to one study, suicidal thoughts in children are linked to a more problematic course of the depression, including earlier onset, longer duration, and shorter intervals of remission.

Not all depressed children will have suicidal thoughts or show suicidal behaviour. Also, not all children with suicidal thoughts or behaviour are depressed.

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Some important warning signs of potential suicidal ideation in children are:

- Aggressive or hostile behaviour
- Anxiety or restlessness
- Change in personality
- Hopelessness
- Shame, guilt, self-hatred
- Frequent statements on social media about self-harm
- Neglect of personal appearance
- Preoccupation with death (writing/drawing)
- Reckless or risk-taking behaviour

Management of depression in children includes counselling, traditional antidepressant medications, psychotherapy, and possibly other therapeutic modalities.

THE TREATMENT SHOULD INVOLVE SHARED DECISION MAKING WITH THE PATIENT AND THE FAMILY.

Ketamine is the most widely used procedural sedative worldwide (particularly in children), in both first and third world countries, and has a safety record spanning half a century. Low dose, outpatient ketamine infusion is recognised as an effective way to reverse suicidal ideation (in around 75% of patients after a single infusion) and has recently been endorsed by the South African Society of Psychiatrists (SASOP) as an effective treatment option for 'Treatment Resistant Depression' (TRD). Given ketamine's proven safety record in children (at much higher used dosages) and the increasing incidence of depression and suicidal ideation in children, does ketamine infusion therapy (KIT) in children not deserve much closer scrutiny?

THERE IS A PAUCITY OF PUBLISHED RESEARCH EXAMINING THE EFFICACY OF KIT IN DEPRESSED, SUICIDAL CHILDREN, WHILE THERE IS AN ABUNDANCE STUDYING THIS IN ADULTS.

I present three brief case studies involving children whom I referred to a KetaMIND outpatient clinic, and a testimonial from the mother of a suicidal teenage girl who completed a series of ketamine infusions. In my opinion, the efficacy of this treatment in children should not be overlooked. These cases demonstrate that KIT can offer a safe and rapid solution, particularly when suicidal ideation is at the forefront.

CASE STUDY 1

PIET – 11 Years old

Piet was brought to me in May 2022 for assessment and treatment (referred by his psychologist).

His parents are both high achievers. The mother, (who brought Piet) was very distressed and tearful.

It transpired that Piet had been severely depressed for a long time and had been verbalizing strong suicidal ideation ("I don't want to live") Piet was a premature baby. Mom worked throughout her pregnancy and never rested, as her job is rather demanding. She admitted that she never bonded with either of her sons (age 11 and 9). Piet went to creche at 18 months and began displaying "behavioral problems". In primary school he was disruptive and restless. The pediatrician diagnosed ADHD and initiated Ritalin LA. The response was minimal.

He was bullied at school for years. When I first saw him, the mother was falling apart, trying to cope with the demands of a busy job and controlling 2 boys with behavioral problems. Piet's suicidal ideation was rather alarming.

I commenced him on Serdep 25mg and carried on with Ritalin LA 30mg. Piet had his first infusion on the 03.06.2022. His PHQ 9 before the first infusion was 18/27. The response was remarkable. Compared to his mental state prior to the infusion, when he hardly spoke and drew pictures of scary black creatures, he began smiling and drawing colorful pictures of birds. He became calm and friendly, expressing love for his parents and brother.

He had a top up infusion on 17.06.2022 during which he kept on repeating to his dad "I Love You Dad".

When I saw him on 31.08.2022 he was friendly, cooperative, and engaging.

His account of the Ketamine experience was *"I saw colorful beautiful fish as well as turtles. They were swimming in the ocean and wanted to be my friends. I felt happy and my heart was warm. I never saw the spooky dark faces I used to see before".*

Piet looked and behaved like a totally different child. His family was relieved and extremely grateful.

CASE STUDY 2

Kayleen – 8 years old.

Kayleen was referred to me by her therapist in October 2021. It was reported that she began looking unwell a month prior to that – appeared fatigued, pale, despondent, and not her usual bubbly self. She shared with her therapist that she did not want to live anymore and was thinking of ways to end her life either by stabbing herself, shooting herself or throwing herself under a moving car.

When I assessed her, she was cooperative and spoke to me at ease.

Kayleen confessed how *"sore"* her heart was. *"If magic was possible, I would love my mom and dad to be together like when I was younger"* she shared tearfully.

The trigger for her depression was an acrimonious divorce and ongoing disagreements between her parents. There was a family history of depression and suicide attempts.

With the help of her mom the PHQ-9 was completed and the initial score was 22/27. I initiated Escitalopram 5mg mane and referred her for a ketamine infusion. She responded remarkably well. The suicidal ideation/ intent subsided almost immediately, and she was her old self again. Her depression escalated again in December 2021. She confided in her therapist that she would be better off dead, as she *"wouldn't feel the guilt" "Being in heaven would be better".*

Both her therapist and I were now seriously concerned, as her suicidal plans became even more elaborate. A second Ketamine infusion was administered at the end of December 2021. Her PHQ -9 scores dropped to 0/27. Her mother was so relieved and excited she took her daughter to the beach, and they spent a lovely day together.

Kayleen's smile was back on her face, and she returned to normal activities, showing interest in her hobbies and pets, acting like a normal happy child. I assessed her progress recently.

She remains euthymic and despite the ongoing parental discord, Kayleen is surprisingly resilient and grounded. She proudly told me that she is raising funds towards a pair of love birds, once her coin jar is full. She has remained depression free to date.

CASE STUDY 3

Angela – 13 years old.

I first saw Angela at the end of July 2022. She is a scholar at a popular private school in town. She is one of three children raised by her mother.

Her parents divorced when she was eight. Her father suffered severe mental illness for many years (? Schizophrenia). The trigger factors for her depression were the breakup of mom's relationship with her partner, the death of a beloved pet and academic pressure at school.

She presented with emotional numbness, anhedonia, academic underachievement, anxiety, panic attacks, insomnia, and low appetite. She was already on Serdep 50mg at the time I saw her but remained anhedonic and depressed.

I had suspected an underlying ADHD, which was only diagnosed at her last appointment with me a month previously. The clinical presentation and possible ADHD symptoms led me to initiate Wellbutrin, starting at a low dose.

Due to the severity of her depression, I referred her for a Ketamine infusion. Her PHQ- 9 prior to her first infusion was 23/27 (29.07.2022). She subsequently had 2 more infusions.

16.09.2022 PHQ-9 19/27 (before infusion)

30.09.2022 PHQ-9 16/27 before the 3rd infusion.

When I saw her on 10.10.2022, her mood was significantly better, and her PHQ-9 had dropped to 3/27. However, she reported trouble concentrating and complained that her mind felt like a "washing machine". Once she completed the ADHD self-report scale it became evident that she had severe ADHD (15 of the 18 symptoms) and fell in the range moderate to severe. I subsequently initiated a long-acting Methylphenidate (Contramyl XR36mg) and stopped her Wellbutrin. She has responded exceptionally well.

I asked Angela to write about her experience with Ketamine and this is what she wrote:

"Before Ketamine, I felt hopeless and constantly down, like there was no point to continue. During the Ketamine treatment I felt so happy and free, I felt like I didn't have any worries and that nothing should have the power to get me down. The weight was removed off my shoulders and it didn't seem impossible to do basic things. I felt better and thought it was a little unfair that some people get to feel like this every day! I found that it wasn't as difficult to find motivation to continue".

Despite ongoing family stressors and pressure at school, Angela is coping well, and her academic performance has improved greatly.

The following is a brief account of a mother's harrowing experience with her 14-year-old suicidal daughter who tried to hang herself in a bathroom. She subsequently presented for a series of 40-minute ketamine infusions at a KetaMIND (KCSA) clinic. Identities have been protected.

Dear KetaMIND,

Below is a short account of my experience with the ketamine treatment that Belinda underwent,

My daughter was a free spirited, fun loving gregarious child up until the end of her grade 7 year, when she started showing signs of severe depression. For a year her depression became progressively worse. She started cutting herself. She retreated into a dark, sad world of her own.

We tried psychologists and psychiatrists and so many different types of medication to help her, but nothing seemed to help. At the end of her grade 8 year at school, when she turned 14, she tried to commit suicide and we had to place her in a psychiatric hospital for adolescents in Stellenbosch. Three days after her release from the hospital she cut herself so badly that she needed to go to casualty at our local hospital. Both the attending psychiatrist and emergency room doctor recommended ketamine infusion therapy.

We were surprised to hear that there was a KCSA Ketamine clinic nearby, and after intense research and speaking to the National Director of Ketamine Clinics of South Africa (Dr Howard) decided that we would try the treatment. My daughter underwent 6 treatments with 3-4-day intervals. The day after her first treatment the family noticed a remarkable improvement in her disposition. My daughter wanted to have friends over for a play date. This was a major breakthrough. We were sceptical that it was a result of the treatment, as the effect was so immediate but were absolutely taken aback by the improvement after each of the 6 treatments. She started listening to music, socialising with her friends, laughing (something we haven't heard for a year). She is enjoying going to school and is doing art in her spare time. She is the carefree child that we used to know.

Ketamine treatment has been such an amazing breakthrough and together with her psychologist and psychiatrist I truly believe that this has saved her life.

KCSA you have no idea how appreciative we are of this incredible gift which you have given us. You have given us our daughter back.

Kindest regards,

Belinda's Mother

Informed consent for publication was obtained from both parents and children. References can be obtained from the author.

Maria Dobreva is a psychiatrist in private practice and has practiced in the Natal Midlands for over 20-years. **Correspondence: mariadobreva43@gmail.com**