Saint Luke Institute

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Alcohol Use Disorder: A Medical Perspective

by Joseph P. Collins, D.O.

Alcohol Use Disorder (AUD) is a complex medical illness caused by medical/biological, psychological, and social factors—a "biopsychosocial" illness—though many still hold the misconception that AUD is a personal moral failing. This article will highlight the biological underpinnings of the illness and the medical treatments currently available with the hope of increasing the understanding of AUD as a biopsychosocial illness and lessening the stigma of this condition in our culture.

Close to 30 million people suffer with AUD in the United States in any given year, and 150,000 people die from the effects of AUD annually. Since the beginning of the COVID pandemic in 2020, AUD deaths in the United States have increased by 25 percent, and we have seen a rise in related deaths of despair: suicide, overdose, and liver disease.

The medical consequences of AUD are staggering. Over 200 illnesses are associated with AUD, including hypertension, heart disease, stroke, pancreatitis, and several types of cancer, including breast and colorectal cancers. AUD can also cause memory loss and dementia. Over 50 percent of liver disease is due to AUD.

Alcohol use disorder often leads to subtle but significant biological changes in brain cell function. Brain cells, known as neurons, communicate with one another through biochemical substances called neurotransmitters. AUD affects several neurotransmitters, including dopamine, norepinephrine, and glutamate, negatively impacting how the brain cells communicate with one another.

Neuroimaging of the brain and genetic studies have led to greater understanding of the biological underpinnings of AUD. The three stages in the development of AUD are characterized by biological changes in the neurotransmitters in three different areas of the brain.

The initial stage of "bingeing" and "intoxication" is characterized by euphoria, or "getting high" on alcohol. Excess dopamine in the limbic system is pleasurable and leads to positive reinforcement of the desire to drink excessively. Many people remain in this stage and progress no further.

The second stage of the disease is the "withdrawal" or "negative affect" stage, due to norepinephrine dysregulation in the amygdala and characterized by unpleasant emotions such as guilt, shame, and irritability. Drinking is now a form of negative reinforcement, alleviating the unpleasant thoughts and feelings. The original pleasure of drinking diminishes, and the person is "hooked."

The third stage is the "preoccupation" stage. A person intensely craving alcohol has a compulsion to search for it. The glutamate neurotransmitters in the brain's frontal lobe compromise executive functioning, and the person becomes preoccupied with drinking. Even if the person enters treatment and stops drinking, this preoccupation may continue for months, sometimes years,

"Close to 30 million people suffer with Alcohol Use Disorder in the United States in any given year. . ."

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Case Study | **Father Martin**

Father Martin, age 42, was ordained a Catholic priest ten years ago. He served as parochial vicar in two parishes before being assigned to his current pastorate, where he is responsible for two parishes on the outer reaches of the diocese, far away from family and friends. In addition to being isolated from his previous support system, he found it challenging to build relationships with either parish community, as neither had a particularly healthy relationship with their prior pastor.

An intense feeling of loneliness set in, which he alleviated by drinking more in the evenings. At first, he enjoyed his after-dinner drink, as it gave him a feeling of euphoria and relaxation. He had something to look forward to after a taxing day of dealing with parishioners and staff.

"He did not consider his drinking a problem, nor had alcohol been a significant part of his upbringing."

Over time, he needed several bourbons to relax and fall asleep, and he would frequently awaken during the night. He became more irritable with the staff during the day. In the evenings, he felt depressed and agitated, ruminating about any minor negative experience from the day. He needed a drink to settle down, more often several drinks. Gradually, he developed a habit of finishing off half a bottle of bourbon in an evening. If he did not drink, he was absolutely miserable. Eventually, he began to think about his evening bourbons during the day. He became preoccupied with going to the liquor store and selecting new and different varieties of bourbon.

Father Martin did not consider his drinking a problem, nor had alcohol been a significant part of his upbringing. He remembered hearing stories of his maternal grandfather's drunken behavior and his mother's brothers, who often brawled in bars. He did not behave that way. He said daily Mass, heard confessions, visited the sick, and kept tabs on the parish finances. He was an attentive, responsible pastor. While he knew that he was often irritated and raised his voice with his staff, it did not strike him as unreasonable behavior.

Eventually the bishop got wind of Fr. Martin's hostile outbursts and confronted him. Fr. Martin insisted he was within the bounds of being an effective leader. However, with the support of the administrative staff, a maintenance man presented the bishop with photos of the whiskey bottles in the recycle bin.

Fr. Martin arrived at Saint Luke Institute insisting his alcohol use was manageable. However, during his evaluation, his blood pressure and heart rate were significantly elevated, and he had a noticeable tremor. He was sent to an emergency room, where he was diagnosed with alcohol withdrawal syndrome. He was admitted to the hospital for a few days of detox and given IV fluids and a benzodiazepine for alcohol withdrawal. After his discharge, he resumed the evaluation at SLI.

Fr. Martin's blood pressure and heart rate eventually returned to normal. His liver enzymes indicated a toxicity that lingered for several weeks. Cognitive tests indicated a mild memory problem, which could have been contributing to his frustrations in parish meetings. This appeared to be in the early stages and likely reversible, given time.

Fr. Martin entered the intensive outpatient program at Saint Luke Institute. He continued to notice intermittent cravings for alcohol, so his doctor prescribed daily naltrexone to decrease these urges. He also was treated for an underlying depression with an antidepressant. Gradually, his liver enzymes returned to normal, and his memory improved.

Fr. Martin received comprehensive treatment for his alcohol use disorder.

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Case Study *continued*

In addition to the medical and psychiatric treatment he received, he also participated in group therapies. These included a general psychotherapy process group, psychoeducational groups, art therapy, psychodrama, and exercise. He participated in individual psychotherapy sessions twice per week, met with a spiritual integrator weekly, and attended spirituality groups.

Although Fr. Martin had developed an alcohol use disorder, it was discovered early enough for him to recover fully.

For confidentiality, reasons, names, identifying data, and other details of treatment have been altered.

Medical Perspective *continued*

while they struggle to establish and maintain sobriety and avoid relapses.

Detoxification from alcohol ("detox") is an acute medical condition that often requires immediate attention with intravenous fluids to rehydrate the person, prescription medication, and sometimes hospitalization. The signs and symptoms of alcohol withdrawal include tremors, nausea, headache, and irritability. In some instances, seizures will occur. If left untreated, about 15 percent of people who develop alcohol withdrawal seizures will die.

Medications commonly used for alcohol withdrawal and establishment of sobriety include benzodiazepines such as clonazepam (Klonopin), diazepam (Valium), and lorazepam (Ativan). Medical detox is often necessary before treatment of the underlying AUD can begin.

Medications are frequently prescribed for establishing and maintaining sobriety. These drugs are categorized as first and second line treatments for AUD. Naltrexone and acamprosate are considered first line. Naltrexone (ReVia) is an opioid that reduces cravings for alcohol as well as the reward of drinking. Typically taken orally, naltrexone blocks the reward effects of drinking and decreases the incentive to drink. It is most helpful for people who are actively pursuing abstinence, as it reduces heavy drinking.

Acamprosate (Campral) decreases cravings, thereby reducing the negative reinforcement of drinking alcohol to alleviate discomfort. While it is not as commonly prescribed, in part due to its need to be taken three times per day, some studies have found it to be more effective than naltrexone in reducing relapse. It targets the symptoms of a negative withdrawal state, including dysphoria, irritability, and anxiety.

Disulfiram, gabapentin, and topiramate are second line medications. Disulfiram (Antabuse) is taken daily to deter drinking. Disulfiram blocks the metabolism of alcohol, thus allowing the buildup of aldehyde. Drinking while on disulfiram can produce a very unpleasant reaction, including flushing, nausea, and vomiting. A person needs to be highly motivated to take disulfiram to maintain sobriety. Often it is administered in a supervised setting due to the temptation to skip doses in order to drink and avoid the noxious reaction.

Gabapentin (Neurontin) is an anticonvulsant medication also prescribed for pain, anxiety, and insomnia. It can reduce episodes of heavy drinking and alleviate some of the negative symptoms of abstinence, such as anxiety and insomnia.

Topiramate (Topamax) is another anticonvulsant that has been shown to mitigate heavy drinking and facilitate abstinence. Since topiramate is also used to treat migraines and help with weight loss, it may be particularly helpful for people who also struggle with these issues.

Several other psychiatric conditions are often diagnosed in conjunction with AUD. These include major depression, bipolar disorder, post-traumatic stress disorder, attention deficit disorder, schizophrenia, and personality disorders such as antisocial, narcissistic, and dependent personalities. There is a significantly better chance of remission if these concomitant conditions are addressed in treatment with AUD.

In summary, alcohol use disorder is a complex biopsychosocial illness that can lead to serious medical interventions and biological changes in the brain. An appropriate appreciation of medical interventions as integral to the treatment process, along with psychological, social, and spiritual interventions, offers the person the best chance for success.

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