The ED management of Alcohol Withdrawal.

Alcohol is one of the most commonly used mind altering drugs worldwide. Approximately 50% of the North American population over the age of 12 consumes alcohol on a regular basis, and excessive consumption is associated with harm. It is estimated that up to 30% of ED visits are in some way related to the consumption of alcohol.

Alcohol withdrawal syndrome occurs in 15-70% of heavy drinkers who suddenly reduce or stop drinking. It typically begins within 6-24 hours after the last drink. Patients may present in alcohol withdrawal for many reasons, including simply wanting to stop, the development of a medical condition which limits their ability to consume alcohol (eg alcoholic gastritis), or being held in hospital for treatment with limited access to alcohol.

There are several important reasons emergency department clinicians should be interested in the management of alcohol withdrawal.

1. It is a common complaint with over 500,000 patients receive pharmacologic treatment for alcohol withdrawal in US ED’s ever year.

2. Patients in alcohol withdrawal spend a long time in in the ED. Our work has shown that these patients have ED length of stay (“LOS”) on average almost 3 times longer than other patients presenting with similarly high acuity (typically level 2-3 on our 5 level Canadian Triage and Acuity Scale – “CTAS”).

3. It is variably, and often poorly, treated. There are likely several contributing factors for this:
   a. In most ED’s, there is no standardized approach to the management of alcohol withdrawal.
   b. The skills related to assessing and treating alcohol withdrawal are not well taught to either nurses or physicians. This is exacerbated by high staff turnover rates in many departments resulting in staff never acquiring the required skills through experience. The result is that even when there is a standardized approach, it gives variable results.
   c. Alcoholic patients often have complex psycho-social, behavioural, and polysubstance abuse issues which make them challenging to deal with. These factors, combined with the social stigma associated with alcoholism and substance abuse, may result in clinical staff who are indifferent to these patients compared to those with other conditions.
   d. Appropriate dosing of benzodiazepines requires clinicians to have confidence in their assessment of withdrawal severity. The medications used to treat alcohol withdrawal (benzodiazepines) are potent CNS depressants, especially when combined with alcohol. Excessive dosing will result in over-sedation and respiratory depression. Conversely, inadequate dosing may result in seizures and possibly delirium. Both may result in prolonged ED LOS and higher hospital admission rates.
e. As a class, benzodiazepines are highly addictive in their own right. Drugs of this class are commonly diverted to, and available on, the black market. This may lead clinicians to withhold treatment from patients who actually need it fearing they are trying to acquire benzodiazepines for secondary gain. Indiscriminant use of benzodiazepines may also result in ED treatment contributing to benzodiazepine dependence and addiction.

f. Though not common, alcohol withdrawal can be fatal if poorly treated. Untreated severe withdrawal frequently results in seizures, and may progress to delirium tremens. Patients in alcohol withdrawal may also have metabolic disturbances which can be life threatening and complicate their ED care.

From our research, and my personal experience, I believe the ideal management of alcohol withdrawal involves 4 steps:

1) Identifying which patients actually have alcohol withdrawal and require treatment.

2) Using a standardized, symptom guided approach to assess symptom severity and guide treatment.

3) Ensuring that patients are fully treated prior to ED discharge.

4) Providing a pathway to support patients who are trying to quit.

The following is a brief description of the key elements of each of these steps.

**Identifying patients with alcohol withdrawal requiring treatment:**
Identifying patients in alcohol withdrawal who require treatment is an important clinical skill. The most common, and easily identifiable feature of alcohol withdrawal, is tremor. The key features of the tremor of alcohol withdrawal are:

1) It is an *intention* tremor. It may not be obvious until the person makes a purposeful movement; it typically involves the hands, but when severe can involve the entire body (including the tongue)

2) It is a rapid tremor (typically 7-12 Hz) which is constant

3) It does not fatigue, in fact the longer patients hold their hands out, the more pronounced it is likely to be.

There are other features of withdrawal, but with experience, the tremor is easily identified, and usually the best clinical cue.

The likelihood of developing withdrawal will be dependent on the usual amount consumed, as well as duration of consumption. Patients who consume large amounts of alcohol on a regular basis, for long periods of time, are more likely to develop withdrawal requiring pharmacologic management than those who binge sporadically, or those who have only been drinking for a few days (ie. recently “fallen off the wagon”). The history of how long, and how much alcohol, the patient has been consuming since
the last period of sobriety is important. Patients who have recently been treated for withdrawal, and been given adequate doses of benzodiazepines deserve special consideration. If their visit record is available, it is worthwhile reviewing for duration of stay, total drug administered, and any prescription given at discharge. Some patients return to the ED claiming to be in withdrawal, yet are documented as being treated just a day or two before. They may have been inadequately treated, but remember that patients will continue to crave alcohol for a long time, which should be distinguished from having ongoing/undertreated withdrawal which requires additional treatment to prevent complications. The goals of ED treatment are to relieve acute symptoms, to prevent the serious consequences of withdrawal, and to allow patients to feel well enough to seek help for their addiction. The long term management of alcoholism is complicated and beyond the scope of this presentation.

Use a standardized, symptom guided approach to assess symptom severity and guide treatment:
At least two randomized controlled trials have demonstrated that patients treated using a symptom guided approach have 1) faster resolution of withdrawal symptoms, 2) lower total doses of benzodiazepines administered, and 3) no increase adverse events compared to patients treated using a fixed dose schedule, or no structured approach. The gold standard for assessing alcohol withdrawal severity is the Clinical Institute Withdrawal Assessment-Alcohol revised (CIWA-Ar). It evaluates 10 domains which are each scored on an 8-point Likert scale (except orientation which is a 4 point score). It is important to understand that patients who are confused and exhibiting signs of delirium should be admitted to hospital...they cannot do a CIWA. Additionally, there are many other potential causes for delirium, and causes other than alcohol withdrawal need to be considered.

The CIWA is an imperfect, but useful tool, which takes time and experience to understand how to administer. Our CIWA protocol calls for patients to be assessed hourly, and treated if the total CIWA score is 10 or greater. Patients should be reassessed hourly until they have 2 sequential CIWA scores (over at least 2 hours) which are below 10, after which they may be considered for discharge.

Patients are best treated with benzodiazepines, which interact with GABA receptors in a way which pharmacologically mimics ethanol. The reason for preferentially using diazepam is that it is slowly metabolized: diazepam and its active metabolites have a half-life of 96 hours, resulting in a gradual taper of its effect, preventing the serious complications of withdrawal (seizures and delirium tremens). While diazepam is the drug of choice, it is metabolized hepatically into other active agents, which means that it is best avoided in patients with significant liver dysfunction (known cirrhosis, jaundice, ascities, increased INR, low albumin). Patients with obvious or known liver dysfunction should be treated with lorazepam, which undergoes glucuronidation (also hepatically) but is then directly renally excreted without transformation into an active metabolite. The half-life of lorazepam is significantly shorter than diazepam (less than 12 hours), which means that its effects will wear off and leave patients vulnerable to seizures and delirium tremens post discharge. Patients treated with lorazepam therefor require longer periods of observation, and likely hospital admission. Patients in withdrawal often require significant total doses of benzodiazepines. The recommended starting dose for diazepam is 10-20 mg PO (2-4 mg lorazepam), and the total dose range can easily exceed 60-100 mg (12 mg lorazepam) over several hours. Patients who are awake and still exhibiting signs of withdrawal (moderate tremor, significant agitation etc) can safely receive more regardless of how much they have been administered.
The overall goal of benzodiazepine administration in the ED is to treat patients aggressively when their symptoms are worse (early in their course i.e. the first few hours), and then taper dosing as symptoms come under control. In my experience, inadequate treatment early on leads to symptoms which are much more difficult to control.

Benzodiazepines are highly bioavailable, and orally ingested doses are usually fully absorbed and clinically active within 1-2 hours of administration. Remember that patients with significant nausea and vomiting for any reason are probably best treated with parenteral medications, at least initially. Additionally, patients displaying evidence of severe withdrawal are at high risk of seizures, especially if they have previously experienced withdrawal seizures. Intravenously administered benzodiazepines in this population will bring symptoms under control faster, and intravenously administered medications are easier to titrate to effect. If you are uncertain about administering 20mg of diazepam intravenously, by all means give 10mg, and re-assess them after 30 minutes (or sooner if you wish) to determine if symptoms are coming under control. Full effect of an IV dose should be evident within 15 minutes of administration.

**Ensuring that patients are fully treated prior to discharge from the ED:**
Benzodiazepines as a class have high abuse potential, which is highest in alcoholics and opiate addicts. They are also valuable, and commonly diverted onto the black market. These factors are important when considering the treatment of alcohol withdrawal. Clinicians need to be alert to patients who present to the ED claiming to be in alcohol withdrawal, who are trying to be treated with/secure a supply of benzodiazepines for secondary gain. I strongly recommend that patients be held in the ED until fully treated, and discourage the providing take away supplies or prescriptions for benzodiazepines. The long half-life of diazepam will protect patients from developing serious manifestations of withdrawal, and if adequately treated in the ED, no additional medication will be required.

**Providing a pathway to support patients who are trying to quit:**
Achieving and maintaining sobriety are enormous challenges for alcoholics. Their problems are complex, often combined with mood disorders or other psychiatric diagnoses for which they are trying to self-medicate. There are limited resources to help patients who are trying to quit but every ED should have a list of resources available within that community. This should include withdrawal management services (Detox) centers, a list of local AA chapter meeting dates, as well as other inpatient or outpatient treatment options. Your social worker has an important role to play in supporting patients, and directing them to available resources.

In summary, alcohol withdrawal is commonly encountered in the ED, and a structured approach to its management will lead to better outcomes and shorter ED length of stays. The diagnosis is a clinical one, but the most reliable sign of withdrawal is tremor. A symptom guided protocol using the CIWA score is currently the best way to manage this condition, but requires some experience to properly use. Diazepam should be the first line agent for most patients, and efforts should be made to fully treat patients before they are discharged from the ED. Providing additional benzodiazepine prescriptions should be discouraged.