

## Liver / NASH blog post – Serving the needs of NASH patients

Hearing from our **alfapump**<sup>®</sup> patients how it has changed their lives is both humbling and inspiring. For them it is often the small things like socializing with friends, going on holiday, meeting their grandchildren, working in the garden or driving that are so important and can transform how they live with their terrible disease.

Non-alcoholic steatohepatitis (NASH) is transforming the profile of liver ascites. While traditionally alcohol and hepatitis have been the key drivers, obesity is now increasingly important. NASH is often described as a ‘silent disease’. It is a severe form of non-alcoholic fatty liver disease (NAFLD) where the liver becomes inflamed due to the accumulation of fat. It is extremely difficult to diagnose, with patients experiencing few or no symptoms until the disease is advanced and, in many cases, can no longer be reversed or treated with simple lifestyle changes.

Our increasingly unhealthy lifestyles and an aging population have sharply increased the cases of fatty liver disease and NASH over the past two decades. It is estimated that 30-40 million people will have NASH in the U.S. in 2030. Despite huge efforts by pharmaceutical companies to develop treatments, clinical results have been underwhelming and there is still no approved treatment for NASH. Indeed, late-stage assets from leading players such as Genfit and Intercept Pharmaceuticals have failed in clinical trials, highlighting the complicated nature of this disease and the challenge the industry faces in finding effective treatments.

NASH can lead to severe scarring/fibrosis of the liver, known as cirrhosis. This scar tissue obstructs the blood flow through the liver causing fluid to leak from the liver into the abdominal cavity. This abnormal fluid build-up in the abdomen is called ascites. In the 10% of ascites patients for which diuretics stop being effective, patients can accumulate 10-15 litres of ascites every fortnight. This leads to extreme discomfort, pain, difficulty breathing, walking, eating and sleeping. Imagine trying to stand straight or move while carrying 15 one litre bottles of water inside your belly.

The most common treatment is drainage, also known as paracentesis, a procedure that was used in the time of the ancient Egyptians and hasn’t changed much since. In this invasive procedure, a large-bore needle is inserted into the abdomen to drain the fluid - this process can take 5 to 7 hours and has to be done in hospital under medical supervision. Unfortunately, this does not stop the accumulation of fluid and the drainage needs to be repeated every couple of weeks, severely impacting their quality of life and creating a huge burden on already stretched healthcare systems. We estimate that half of the patient’s remaining life is “lost” due to the burden of this terrible disease.

At Sequana Medical, we developed the **alfapump** to continuously remove the fluid from the belly and avoid these problems. Our unique fully implantable device pumps fluid into the bladder where it is simply urinated away. It is a seemingly simple solution, but it makes a huge difference to the lives of patients by taking away the frequent hospital visits and, most importantly, giving them freedom to go about their lives.

The **alfapump** is already making a difference to the lives of patients, with over 800 systems implanted to date and hundreds of patient years’ of experience. It is approved and marketed in Europe for refractory liver ascites and malignant ascites and has been granted breakthrough device designation by the U.S. FDA. We are actively pursuing approval for the **alfapump** in North America, where the prevalence of NASH is large and growing. We estimate that the U.S. market for the **alfapump** due to NASH-related cirrhosis will exceed €3 billion annually within the next 10-20 years.

I have no doubt that over time our industry will develop effective NASH drugs, but I am sure there will be a significant and long-term role for the **alfapump** alongside these drugs. Take the example of coronary artery disease - despite the success of statins and other drugs, there is still a large market for coronary stents and the like.

I am honoured to lead a company that is working hard to serve the needs of these NASH patients and look forward to when we can serve patients with the **alfapump** in the U.S. and Canada.

**Ian Crosbie, CEO, Sequana Medical**

**12 November 2020**