alpha-1
ORGANISATION AUSTRALIA INC

Alpha Times

Newsletter of Alpha-1 Organisation Australia inc

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From the President's Pen

It has been a busy time in recent months with various activities undertaken by our volunteers to raise community awareness about Alpha-1. We have been advocating for treatment and have been applying for grants in the hope of gaining funding to develop Alpha-1 learning materials for doctors and for additional patient information sheets.

We have been extending our stakeholder database and corresponding with key stakeholders about the importance of an accurate Alpha-1 diagnosis and treatment access, required to protect our vulnerable population.

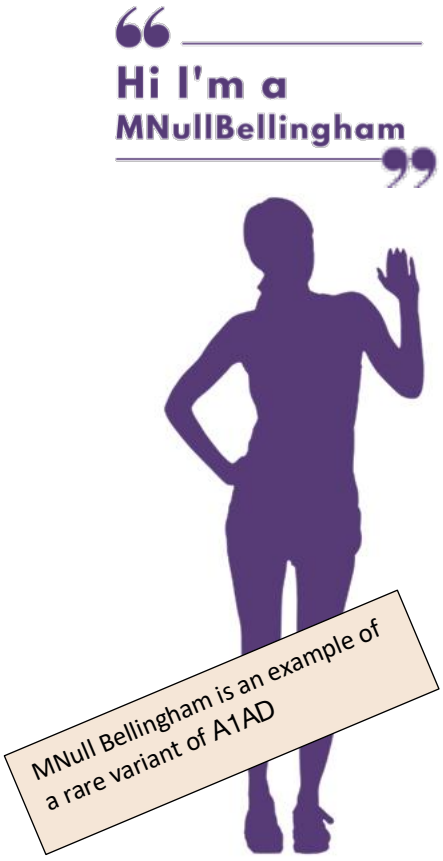
I have written to the Australian Prime Minister (Hon Scott Morrison) and the Minister for Health (Hon Greg Hunt) arguing the need for Australia to have its own mRNA vaccine production capacity, to secure rapid access to new vaccines when new threats appear. I also raised the need for Alpha-1 patients to have access to augmentation treatment and to the best protective vaccines, as people with Alpha-1 remain extremely vulnerable to COVID-19.

In Australia we continue to struggle with Alpha-1 misdiagnosis, with asthma a common first diagnosis. In April I provided the National Asthma Council (NAC) with articles describing challenges associated with diagnosing alpha-1 antitrypsin deficiency and what is described as asthma/alpha-1 overlap. I have provided NAC with suggestions as to where in the Asthma Handbook reference could be made to Alpha-1. Such inclusion should assist doctors who use the Handbook and reduce the number of patients misdiagnosed with asthma.

Original artwork by
Gaynor Heading

The inspiration for this artwork comes from my personal experience, combined with reading about Alpha-1. Many of you will have read that the PiZZ gene is thought to have come from the Vikings. In this piece my DNA ribbon body sits on a swing and reflects upon different Alpha-1 health experiences and the role of genetics and the political economy in health outcomes. The multiple images on the swing invoke different lived experiences based on fate and the political economic landscape.

Alpha-1 Antitrypsin Deficiency (A1AD) Genotypes



The name, Alpha-1 Antitrypsin Deficiency, abbreviated A1AD, is named for a deficiency of the protein alpha-1 antitrypsin. This is a genetic condition but can be caused by a number of variants in the particular gene (the Serpina 1 gene). Over 100 variants have been found though not all cause ill health.

The most common pathogenic genotypes are Z and S, with normal designated "M". Other rare genotypes exist and unfortunately these are harder to detect as A1AD testing usually only looks for Z and S. There are several null alleles, i.e., produce no antitrypsin and these are hard to detect. The best test to detect the Nulls is sequencing of the SERPINA-1 Gene. Access to this is difficult as it is not funded under Medicare (MBS). Currently there is an application made to MSAC relating to Alpha-1 genetic testing, including sequencing of the SERPINA-1 Gene. If this application is successful, then it would make the pathway for people with the Null genotype or variant accessing genetic testing easier. Link to details: MSAC Alpha-1-Antitrypsin Genotyping.

For MNull the health risk is considered moderate for developing lung disease. Liver disease is not thought to be a risk because the Nulls produces zero alpha-1 antitrypsin and so none becomes stuck in the liver to cause damage, as can occur with other alleles that produce malformed molecules of AAT, such as the Z.

This table compares the expected Alpha-1 antitrypsin MNull levels with some of the other phenotypes, genotypes or alleles.

Genotype	Alpha-1 antitrypsin Concentration
MM	Normal
MS	80% of normal
MZ	60% of normal
SZ	40% of normal
ZZ	10% of normal
SS	60% of normal
NullNull	0 produced
MNull	50% of normal

Aunty Alpha

Dear Aunty Alpha

I have developed emphysema and my doctor thinks I have Alpha-1 Antitrypsin Deficiency, but it's not showing up in the blood test. Is this possible?
Regards, Harry

Dear Harry,

Emphysema is one of the main conditions associated with Alpha-1 Antitrypsin Deficiency. Low or absent alpha-1 antitrypsin means that the lungs of individuals with the deficiency are not protected against neutrophil attack when infection sets in, potentially leading to lung damage such as you have. Because testing for alpha-1 antitrypsin deficiency (A1AD) normally only looks for the two most common pathogenic variants, i.e., Z and S, if you have a rarer allele (gene variant) you will need further testing. See the article in this issue on genotypes and Nulls. So, it is possible that you do have A1AD that hasn't shown up on preliminary testing.
Regards, Aunty

Have a question about Alpha-1 Antitrypsin deficiency?
Write to Aunty Alpha at contactus.a1oa@gmail.com

Puffers can help if you have asthma as well as A1AD and if you have emphysema.

Newly Diagnosed? Part 3.

Greetings. In Part 1 of this series, we looked at a few things to do as a priority when you're first diagnosed with Alpha-1 antitrypsin deficiency (A1AD). In Part 2 we looked at some broader implications, including what it means for your relatives. If you want copies of Part 1 or Part 2 do let us know and we'll send them out to you.

As promised, in Part 3 we look in more detail at the symptoms/health effects of A1AD.

While lung disease (Emphysema/COPD) is the most common health impact of A1AD, other conditions linked include liver cirrhosis, hepatocellular carcinoma, necrotizing panniculitis, and granulomatosis with polyangiitis.

We (A1OA) are advocating for screening for A1AD at birth. The reason for this is that some infants are diagnosed with Jaundice at birth (or shortly afterwards) which subsequently turns out to be liver disease caused by A1AD. Testing children at birth (as is done for around twenty five other known conditions such as Cystic Fibrosis) would prevent such misdiagnosis allowing immediate and effective treatment, and would also give parents (and children as they grow up) the information they need to make lifestyle choices to minimise the impact of A1AD.

In adults, the first sign of A1AD is most commonly lung disease, often developing in the forties and fifties; initially this is often mis-diagnosed as late onset Asthma, and only when treatment for Asthma fails is A1AD considered – sometimes only if the doctor/lung specialist is familiar with it.

Liver disease in adults tends to appear later in life, often quite suddenly, although can occur at any age; again, this is good reason for A1AD screening so that those affected can have regular lung and liver tests to detect any impact as early as possible.

Other health impacts of A1AD (e.g. panniculitis/granulomatosis) are far less common than lung and/or liver disease, and are best discussed with the appropriate medical professional if they occur.

In Part 4 of this series, we'll look at the often-overlooked area of mental health when a diagnosis of A1AD is made. If there are any topics you'd like to see discussed in future articles please let us know.

An Alpha Story

Gaynor Heading

When I was about seven, I went panning for gold in an Australian river. A cut on a finger meant I contracted a bacterial infection which spread to three fingers and took ten years to go away. Despite countless visits to doctors and medical teams, fingernails being removed and prescription cream applied, no one was able to explain why the infection didn't heal.

As a child I was vulnerable to colds and spent much of my childhood coughing. Again, no one questioned why. In 1996 I caught Ross River Fever from mosquitoes in my neighbourhood. I spent the next 10 years recovering, with doctors unable to explain why my case was so severe. I had so much brain inflammation that I couldn't read or hold a thought for one year and couldn't drive or walk up my driveway for three years. The inflammation and pain in my joints were unbearable for at least five years. I slowly recovered and the extreme fatigue and pain were almost gone by 10 years. Of course, this illness impacted my personal life, and I couldn't chase my professional dreams. Luckily my husband could look after our children and take on all of the domestic duties.

In 2010 I was misdiagnosed with adult asthma by a respiratory specialist who didn't undertake full lung function tests (no bronchodilation test). In 2018 after admitting myself to hospital with extreme pain from broken ribs from coughing and pneumonia that wouldn't go away with standard antibiotics, I received a correct diagnosis of alpha-1 antitrypsin deficiency. While the diagnosis was earth shattering it explained my previous drawn-out illness and chronic cough. If doctors had better knowledge of alpha-1 antitrypsin deficiency and if Australia had implemented blood spot screening when I was a child, my family and I would have known about my deficiency. We would have understood my vulnerability to bacteria, viruses and inflammation and the need to rapidly treat lung infections to preserve lung tissue. I have now accepted my diagnosis, but I do not accept that there is no treatment funded in Australia for Alpha-1. I now put my energy into fighting for infant screening and treatment for alpha-1 antitrypsin deficiency.

