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Editorial

Hepatitis A, liver transplants and Indigenous communities

Vaccination plus improved living conditions and healthcare are needed to combat hepatitis A in remote Indigenous communities

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In this issue of the Journal, [Hanna et al](#) highlight the serious problem of acute hepatitis A in Indigenous children in far north Queensland communities.¹ This should come as no surprise, as these communities are plagued by poverty, educational disadvantage and poor living conditions -- the very circumstances in which this infection occurs. Indeed, Indigenous children in rural and remote Australia generally have an extraordinarily high burden of infectious disease, with attack rates for conditions such as invasive pneumococcal disease as high as any in the world.² The incidence of hepatitis A virus (HAV) infection in north Queensland in 1996-1997 was up to six times higher among Aboriginal and Torres Strait Islander people than among non-Indigenous people.³ Indigenous people accounted for 29% of all HAV infections but only 8.1% of the population, and contracted HAV infection at a mean age of 12 years compared with 30 years for the general population. The most common risk factor for HAV infection was living in or visiting a rural Aboriginal or Torres Strait Islander community.

An effective hepatitis A control program requires effective vaccines as well as generic programs for improving Indigenous health. An effective vaccine for HAV infection exists,⁴ but it has been suggested that HAV vaccination is not necessary in Aboriginal and Torres Strait Islander communities, as HAV infection is endemic (eg, a 1994 study found that 98.5% of people over the age of 10 years had had HAV infection⁵). However, young children (aged three to five years) are both very vulnerable to severe infection and significant transmitters of infection, and could be targeted by community-wide HAV vaccination programs.³

The patients reported by [Hanna et al](#) highlight a severe complication of HAV infection -- fulminant hepatic failure. As the case fatality rate for HAV infection in Australia is thought to be 0.2%,⁶ cases of fulminant hepatic failure are not unexpected in communities with a high prevalence of HAV infection. Generally, outcomes of fulminant hepatic failure are better if it is secondary to HAV infection than to other causes, such as drugs, hepatitis B or hepatitis "X" (caused by unidentified viruses).⁷ However, children aged under 10 years and adults aged over 40 years do worse, irrespective of cause.⁷ The children reported by [Hanna et al](#) were all under 10 years, had severe hepatitis and were transferred to tertiary care centres relatively late in the

course of their illness. All three died of cerebral oedema, raising the important issue of fluid management in patients with fulminant hepatic failure: aggressive fluid replacement is not part of the management of acute liver failure and may even be detrimental by precipitating cerebral oedema. In the children reported by [Hanna et al](#), delayed diagnosis and late referral were probably contributing factors to cerebral oedema. Early indicators of fulminant hepatitis include a serum bilirubin level of $> 300 \mu\text{mol/L}$, prolongation of clotting time and hypoglycaemia.⁷

These cases also raise the issue of organ transplantation in Aboriginal and Torres Strait Islander populations. Aboriginal people from remote regions have worse outcomes than non-Aboriginal people after renal transplantation, probably because of their higher rates of comorbidity, especially "syndrome X" disorders (insulin resistance, associated obesity and hyperlipidaemia).⁸ Obviously, this would be much less of a problem for liver transplantation in Aboriginal children with fulminant hepatic failure.⁸ There is no reason that Aboriginal and Torres Strait Islander people would have inherently poorer outcomes after liver transplantation than other people, although issues related to primary health care and long term follow-up must be addressed. Indeed, the high prevalence of hepatitis B in the adult Aboriginal community makes the issue of liver transplantation even more relevant. Liver transplantation should clearly be considered a therapeutic option for severe liver disease in the Aboriginal population. The Australian National Liver Transplant Unit has performed liver transplants on two Aboriginal adults with good medium-term outcomes.

However, none of the above issues can be addressed in isolation from general issues of Aboriginal health. Prevention and detection of disease and treatment of severe infection are possible only if the basic requirements for improving Aboriginal health are in place. These include improved environmental and living conditions and comprehensive and competent primary healthcare delivery systems.

There is now considerable evidence that poor living conditions in Aboriginal communities can be improved by focusing on delivery and maintenance of "health hardware" (such as waste removal and supply of cold and hot water and the means to clean living areas).² Furthermore, effective vaccination programs and appropriate primary care management of sick children can occur only in the setting of sustainable, primary healthcare systems. This requires a range of initiatives, in particular supply of a competent rural health workforce.

Appropriate protocols for referring sick children are also needed, as well as access to rapid and appropriate evacuation to large regional hospitals. We believe that the recommendations of [Hanna et al](#) on when to refer are far too conservative. Surely, any young child with clinical or biochemical hepatitis needs to be referred at least to a large base hospital, where immediate investigation and assessment is possible.

The patients reported by [Hanna et al](#) raise many issues about healthcare in Aboriginal and Torres Strait Islander communities, including the need to:

- provide and maintain functioning "health hardware";
- establish sustainable primary healthcare systems;
- deliver effective vaccines for common infectious diseases;

- develop protocols for patient referral;
- provide rapid access and evacuation to large regional hospitals; and
- demystify organ transplantation as an effective therapeutic procedure for fulminant hepatic failure.

These are all achievable!

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