



# 21 YEARS OF PARENTERAL NUTRITION IN NORTHERN IRELAND: A REVIEW OF INTESTINAL FAILURE ASSOCIATED LIVER DISEASE

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# AIMS

- To identify all patients in Northern Ireland on Home Parenteral Nutrition (HPN) since 1995
- To evaluate incidence of underlying liver disease
- To assess abnormality in liver enzymes in current HPN populations
- To identify those with severe liver disease or at risk of same

# BACKGROUND

- Intestinal failure associated liver disease (IFALD) – effect of short gut
  - effect of TPN composition
- Cholestatic enzymes common
- Co-existing liver disease may share risk factors:
  - Inflammatory bowel disease (IBD) and Primary sclerosing cholangitis (PSC)
  - Ischaemic bowel and non-alcoholic steatohepatitis (NASH)
- Who will progress to fibrosis and cirrhosis?
- Consideration of multi-visceral transplant (MVT)

# RESULTS

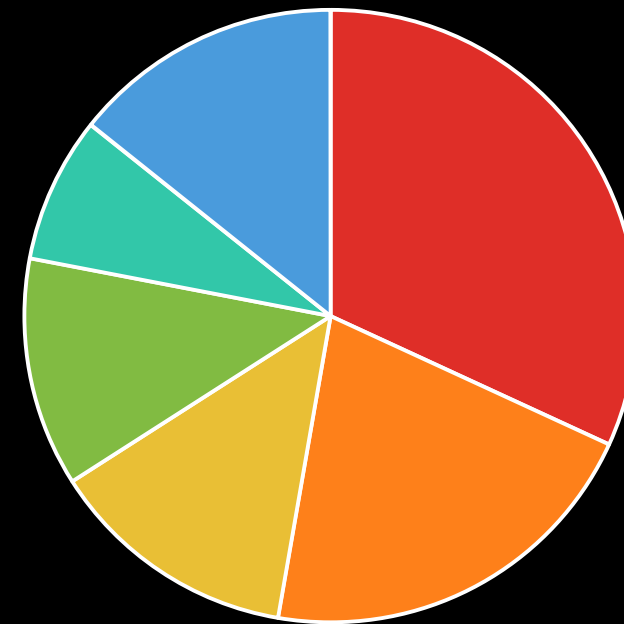
53 females  
38 males

Mean age 50.5 years old  
Range 18-78 year old

Known liver disease at initiation:

- 1 liver transplant as MVT in childhood
- 1 liver transplant acute liver failure nonABC hepatitis
- 2 patients with known PSC

Cause of intestinal failure



- Inflammatory bowel disease
- Ischaemia
- Cancer-related
- Radiation
- Surgical complications
- Miscellaneous

# CURRENT HPN POPULATION

- 22 patients
- Duration 2-187months
- Mean 72 months
- 8/22 abnormal liver enzymes ( $>1.5$  X upper limit normal) at baseline

# CURRENT HPN – ABNORMAL LIVER ENZYMES

Patient	Aetiology	Small bowel to stoma (cm)	Duration (months)	Imaging	Additional information
1	Ischaemia	25	55	MRI 2015 – profound steatosis	Thrombocytopenia
2	IBD	Unknown – multiple resections	3	USS – significant fatty infiltration	Known PSC
3	IBD	50	54	On request	
4	IBD	Unknown – multiple resections	116	Diffuse fatty liver, portal vein thrombosis, gastric varices	Biopsy 2012 – steatohepatitis, mild fibrosis
5	Ischaemia	50	29	MRI 2014 – widespread fatty infiltration	
6	Ischaemia	70	5	USS abdomen – fatty infiltration	Thrombocytopenia
7	Cocoon abdomen	50	2	Splenomegaly	Biopsy – cholestasis, siderosis, minimal steatosis. Liver tx
8	Dysmotility	Whole length SB	4	USS 2016 - normal	MVT in childhood

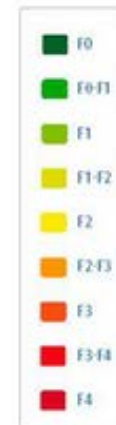
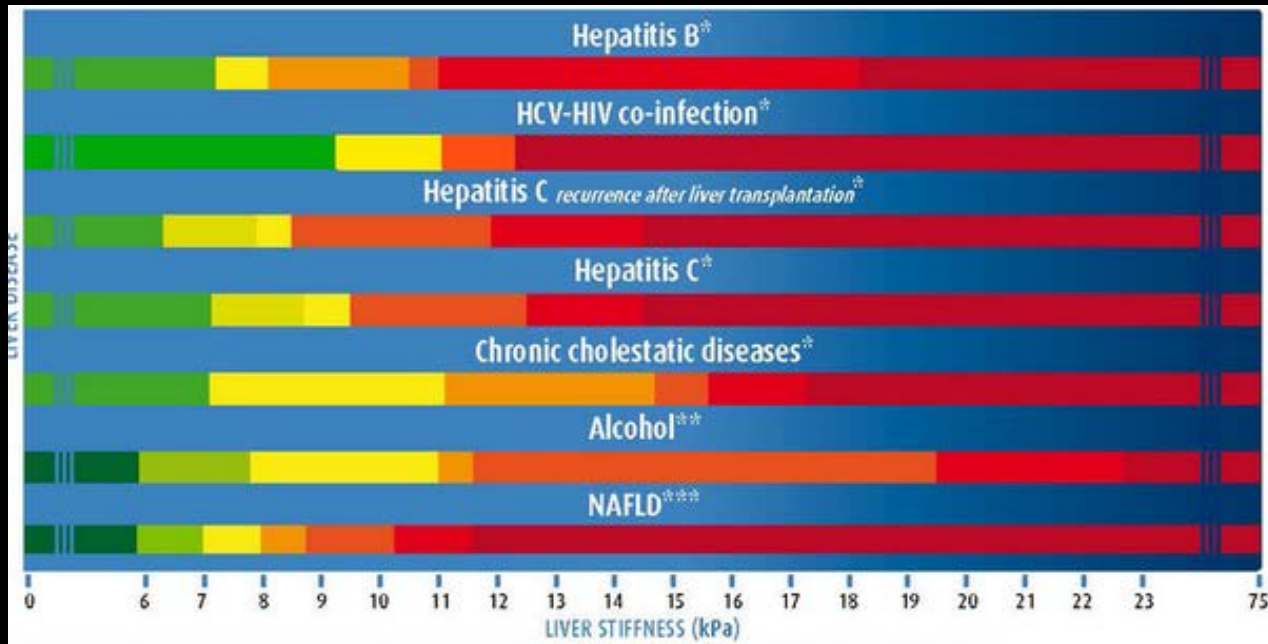
# CURRENT HPN – NORMAL LIVER ENZYMES ....with features of concern

Patient	Duration (months)	Features of concern
1	144	Imaging 2011 – fatty infiltration of liver, spleen 16cm
2	55	USS abdomen 2012 – diffuse fatty infiltration of the liver
3	57	USS abdomen 2015 – diffuse fatty infiltration of the liver
4	32	Thrombocytopenia, splenomegaly, Fibroscan consistent with cirrhosis – awaits MVT
5	164	Direct bilirubin raised and fluctuant. Awaits updated imaging.
6	58	Liver biopsy 2012 – steatohepatitis 60% of tissue, bridging fibrosis, features consistent with TPN use

# FORMER TPN PATIENTS

- Alive off TPN
  - 37 patients
  - All patients have LFTs within normal limits
  - None have known liver disease or suspicion of same
  - *?Reversibility of liver disease*
- Deaths
  - One died awaiting MVT (PSC and cirrhosis)
  - Two with abnormal LFTs, imaging and histology at time of death

# NEXT STEP?



# SUMMARY

- Liver disease commonly co-exists
- Length of gut and TPN composition influence development of liver disease
- Liver enzymes may be normal with advanced fibrosis / cirrhosis
- Need to develop safe ways to assess for liver damage



QUESTIONS?