Nafld lack of recognition, screening or appreciation

NAFLD Definitions and Subgroups : PediatricNAFLD is defined as chronic hepatic steatosis in children (18 years or younger)which is not secondary to genetic/metabolic disorders, infections, use ofsteatogenic medications, ethanol consumption or malnutrition. NAFLDhas recently become the most common cause of chronic liver disease in childrenand adeloscents.

NAFLD in childhood may be attributed to more penetrant geneticrisk or enhanced sensitivity to environmental provocation. Penetrates of NAFLDhas been demonstrated in family members of children with NAFLD 1 Prevalence and riskfactors : Atthe time of the guideline development, there was no studies describing theexact incidence of NAFLD in children. NAFLD prevalence alongside obesitycontinues to increase among pediatric patients.

According to epidemiologicaldata NAFLD may affect 3-10% of pediatric patients. Male to female ratio 2: 1. Incase of obese children NAFLD prevalence may reach 70-80% . 2 A recent meta analysesdemonstrated the pooled mean prevlalence of NAFLD to be 7. 6% in children and34. 2% in different studied based onpediatric obese children. NAFLD are reported in children as early as 2 yearsand with NASH related cirrhosis as early as 8 years. NAFLDwith obesity and OSA related to chronic intermittent hypoxaemia.

The severityof hypoxaemia was found to be associated with histological severity of NAFLDparticularly to fibrosis stage 3. Natural History ofNAFLD in Children : PediatricNAFLD may be more severe compared to NAFLD identified in adulthood 4. Limiteddata suggested that children with NAFLD have increased morbidily and mortalityin adulthood 5. About 15% of children with

NAFLD have stage 3 fibrosis orhigher at diagnosis 6. Reports showed that a few children have rapidprogression to clinical events from NAFLD – death, transplants, diabetes, CVD. Screening of a childrenwith NAFLD : Childrenwith features of Metabolic Syndrome – obesity, hypertension, IR and dyslipidaemiaare at higher risk for NAFLD. In children NAFLD is underdiagnosed due to lackof recognition, screening or appreciation of associated complication by healthcare providers.

Due to paucity of evidence a formal recommendation cannot bemade regarding screening of NAFLD inoverweight and obese children. Recently for diagnosis 2 times the sex specificALT ? 30(B) and ? 44 (G) in overweight and obese children, age 10 years orolder has a sensitivity 88% and specificity 26% 7.· In children withNAFLD low serum titres of autoantibodies are often present. If higher titres inassociation with higher AST ALT, globulins or total protein to alluimin ratiofound liver biopsy should be considered to exclude AIH and related autoimmunedisorders. In children with suspected NAFLDliver biopsy should be performed when diagnosis is unclear or there is possibility of multiplediagnosis or before advising potentially hepatotoxic medications.

Interpretationof histopathology of pediatric liver biopsies shows the unique pattern which istypified by either diffuse, marked macro vesicular hepatocellular steatosis onzone 1, periportal steatosis, portal inflammation and portal fibrosis in theabsence of ballooning 8, 9, 10. Recommendation :

· Biannual screening with serum ALT andserum AST in children at age 10 years with obesity and BMI in 85thto 94th percentile associated with other

risk factors.· Liverbiopsy should be obtained to establish a diagnosis of NASH before startingpharmacotherapy.

. Recentlyradiological imaging modalities serving as surrogates for liver fibrosis onbiopsy. These are included as in adultassessment of Transient Elastography, Magnatic Resonance Elastography, , Acoustic Radiation Force Impulse Imaging. But none of these sufficientlyvalidated to as replacement for tissue sampling 11, 12. Treatment of NAFLD inchildren : Early onset of NAFLD in childrenlikely indicates higher rates of later complication. Screening should beattempted to identify children who will benefit from intervention. The overallgoal is to improve a child's quality of life and reduce long term cardiovascularand liver related mortality and morbidity. 1.

Lifestyle modification : Asthe fundamental causes behind the rising levels of childhood obesity are ashift in diet towards increased intake of energy dense foods that are rich infat and suger but low in vitamins, minerals, healthy micronutrients and a trendtowards decreased level of physical activity. So dietary improvement andincreasing physical activity are the primary treatment for NAFLD in children asmost patients are obese. No recommended particular type of diet or exercise hasbeen existed. One study showed in NAFLD > 20% weight reduction over 12 monthsimprove ALT and steatosis 12. Another study in children having NAFLD with BMI (score > 3.

50) showedintense life style modification offered sustained biochemical improvement. Recommendation :· In childrenwith NAFLD intense life style modification should be the first line oftreatment as it improves ALT and liver histology.· Avoidanceof junk food, ultra processed calorie dense

nutrient poor food , sugar sweetendbeverages consumption. · Moderate tohigh intensity physical activity throughactive recreation and sports (football, netball, running).· Reductionof time to spend on screen based and sedentary leisure activity.· Participationin a minimum of 2 hours of physical activities each week of school days. 2.

PharmacotherapyClinicaltrials of pharmacotherapy in children with NAFLD generally targeted IR oroxidative stress. Metformin 500mg BD, vitamin E, UDCA and delayed releasecholesteamine. An open label proof of concept studies showed changes in ALT orechogenicity on USG as endpoint 13. Therehas been some interest to evaluate Omega 3 FattyAcid where combined eicosapantaenoic acid and doconsahexaenoic acid 250mg/day for 6 months showedsignificant improvement in hepatic fat and also cardio metabolic risk factors. Recommendations :· VitaminE (RRR ? tocopherol 800 IU/day) offer histological improvementin children with NASH.

But long term safety of vit E is not known. · Metforminat 500mg BD often recommended but no benefit.· Omega 3 FAalso has no proven benefit , so not recommended.