early marriage and child birth were still a problem as 2.2% mothers were younger than 18 years in 1992 as well as 2010. The norm of having two children is not yet established as 29% mothers were having 3 or more children in year 2009-10, which also suggests inadequacy of birth control measures.

There are many other areas where improvement was suboptimal like first ANC visit in first trimester, >3 ANC visits, ANC as well as TT at all, and not receiving IFA supplementation. However, these data were better as compared to national figures reported by Government of India where 11.5% pregnant mother did not receive ANC and 26.5% did not receive TT [1] and also in the report from Rajasthan (2010) only 55% pregnant women received TT [3]. Postnatal care was a relatively weak area of ICDS project as only 65.4% mothers received postnatal care as compared to national data where 87% received PNC [3,4]. Postnatal home visits in initial 2 days after delivery has been shown to reduce neonatal mortality rate; hence, it is very important to improvise this [4]. There was increasing trend to have antenatal, natal and postnatal services from medical officers and home deliveries were significantly reduced from 78.6% in 1992 to 4.9% in 2010. However, the progress made in many areas were also due to additional efforts made as part of Janai Suraksha Yojna in National Rural Health Mission, which has its primary focus on institutional deliveries.

To conclude, ICDS program has made significant improvement in many areas but a lot need to be done for improvement in postnatal care, promotion and initiation of breastfeeding within 2 hours of birth.

# Non-alcoholic Fatty Liver Disease in Children

A cross sectional study was conducted in 100 children, aged 5 to 12 years, to find the prevalence of non-alcoholic fatty liver dieases (NAFLD), at New Delhi. Those with fatty liver on ultrasonography with no apparent etiology, were labeled as NAFLD. Three (3%) children had evidence of fatty liver on ultrasonography.

**Key Words:** Non alcoholic fatty liver disease (NAFLD), Prevalence, Ultrasound.

on-alcoholic fatty liver disease (NAFLD) is characterized by hepatic fat accumulation (steatosis) with no apparent etiology [1]. The risk factors for NAFLD are obesity, insulin resistance and genetics. In adults, 15-20% of obese and 2-

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#### REFERENCES

- Three decades of ICDS: An Appraisal; National Institute of Public Cooperation and Child Development: Government of India, Ministry of Health and Family Welfare 2006. Available from: URL: http:// http://nipccd.nic.in/reports/eicds.pdf. Accessed May 15, 2012.
- Kakkar M, Sharma U, Kabra A, Kakkar S. Availability of antenatal and perinatal care in an ICDS area. Indian Pediatr. 1995; 32: 597-9.
- RCH II Outcomes: State Data Sheet, 2010 accessible from http://www.mohfw.nic.in/NRHM/PRC\_RA\_Reports/ Rajasthan/Chittorgarh/State% 20Fact% 20Sheet.pdf. Accessed May 15, 2012.
- National Rural Health Mission: Rajasthan State Report, Government of India 2009Available from: URL: http:// www.mohfw.nic.in/..l./Rajasthan\_Report. Accessed May 15, 2012.
- Gogia S, Ramji S, Piyush G, Gera T, Shah D, Mathew JL, et al. Community Based Newborn Care: A Systematic Review and Meta-analysis of Evidence: UNICEF-PHFI Series on Newborn and Child Health, India. Indian Pediatr. 2011; 48:537-46.

3% of lean individuals have steatohepatitis [2]. We intended to find out the prevalence of NAFLD in children visiting Holy Family Hospital, New Delhi, between June 2007 to December 2008.

One hundred children aged 5 to 12 years were included. Children with malnutrition, acute or chronic liver disease, history of hepatotoxic drug intake and those receiving total parenteral nutrition were excluded. All children underwent anthropometry (height, weight, body mass index (BMI) and waist to hip ratio) and an ultrasound of the abdomen. The diagnosis of fatty liver was based on ultrasonographic findings of hepatorenal echo contrast, bright liver, deep attenuation, and vessel blurring [3]. Further evaluation of these children included liver transaminases, lipid profile, hepatitis B surface antigen, anti-Hepatitis C antibodies, fasting blood sugar, serum ceruloplasmin, and urine for reducing substances. The

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children with no apparent etiology were labeled as having NAFLD.

The mean age was 7.02±2.93 years. A total of 8% (*n*=8) were at risk for overweight (BMI 85<sup>th</sup>-94<sup>th</sup> centile) and 11% were obese (BMI above 95<sup>th</sup> centile). Three children (3%) were found to have NAFLD; one was obese (girl) and other two (both boys) had normal BMI. None of them had hepatomegaly. The obese boy also had raised trasaminases and raied fasting blood sugar.

The present study had limitations of a small sample size to estimate true prevalence, and absence of liver biopsy confirmation of NAFLD. The prevalence was comparable to 2.6% found in Japanese children [4] but lower than that reported from Turkey [5]. Larger population based studies need to be conducted to the true prevalence and associated risk factors of NAFLD in Indian children.

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#### REFERENCES

- 1. Brunt EM. Nonalcoholic steatohepatitis: definition and pathology. Semin Liver Dis. 2000;21:3-16.
- Chan DF, Li AM, Chu WC, Chan MH, Wong EM, Liu EK, et al. Hepatic steatosis in children. Int J Obes Relat Metab Disord. 2004;28:1257-63.
- 3. Roberts E. Nonalcoholic steatohepatitis in children. Curr Gasroenterol Rep. 2003;5:253-9.
- 4. Marion A, Baker J, Dhawan A. Fatty liver disease in children. BMJ. 2003;89:648-58.
- Arsalan N, Buyukgebiz B, •zturk Y, Cakmaci H. Fatty liver disease in obese children: prevalence and correlation with anthropometric measurements and hyperlipidemia. Turk J Pediatr. 2005;47:23-7.