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Characterization of occult hepatitis B infection (OBI) among Iranian vaccinated children from Alborz province - vertical OBI, myth or truth?

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Background: Occult hepatitis B infection (OBI) has been described in various clinical settings; however, studies on the prevalence of OBI among immunized general population are scarce. The real position of occult HBV in immunized populations is not well known.

Material/methods: 558 sera samples obtained from children between 7 and 15 years old selected randomly from different schools located in Alborz Province, Iran, who already had completed doses of HBV vaccine according to standard schedule. None had received HBIg. All were checked by HBV serology and real time PCR. The parents of OBI-positive subjects were investigated by the same methodology.

Results: Mean age was 8.5 years old. All subjects were negative for HBsAg and anti-HBc. In terms of anti-HBs, 300 (53.7%) and 258 (46.3%) were contained adequate (>10 IU/mL) (group I) and inadequate (<10 IU/mL) (group II) levels. 47 (15.6%) and 7 (2.7%) had OBI in groups I and II, respectively. Upon recalling of parents of OBI-infected children, 30 (64%) and 0 (0%) of either mother or father were positive for OBI related to groups I and II, respectively. None of parents were positive for HBsAg. 30.4% of OBI-positive parents had anti-HBc.

Conclusions: Anti-HBs raised by HBV vaccine alone is not enough to neutralize the HBV DNA in vertical (or perhaps intrafamilial HBV) transmission. Inadequate anti-HBs induced by vaccination alone could protect against hepatitis B disease and chronic infection, but may favor occult infections. Further molecular investigation based on high throughput next generation sequencing is undergoing.