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Low mortality after mild measles infection compared to uninfected children in rural West Africa.

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Abstract

BACKGROUND: It has been assumed that measles infection may be associated with persistent immune suppression and long-term excess mortality. However, few community studies of mortality after measles infection have been carried out. We examined long-term mortality for measles cases, sub-clinical measles cases, and uninfected contacts after an epidemic in rural Senegal.

METHODS: The study was carried out in Niakhar, a rural area of Senegal. Index cases of measles were identified and children less than 7 years of age exposed to measles in the same compound had acute and convalescent blood samples collected. Clinically diagnosed measles cases were serologically confirmed. Children without clinical symptoms were classified as sub-clinical cases if they had a four-fold or greater change in antibody levels between samples collected at exposure and 1 month later and as uninfected if there was no or a two-fold change in antibody levels.

RESULTS: There were 31 index cases, and among 184 exposed contacts, 35 (19%) children developed clinical measles. Among contacts that did not develop clinical measles, 45% had sub-clinical infection. Measles cases, sub-clinical cases, and uninfected contacts did not differ with respect to nutritional status. However, uninfected children without clinical symptoms and change in antibody level had higher initial measles specific IgG antibody levels and less intensive exposure to the index case. No index or secondary case of measles died in the acute phase of infection nor did any of the children exposed to measles die in the first 2 months after exposure. Exposed children developing clinical measles had lower age-adjusted mortality over the next 4 years than exposed children who did not develop clinical measles ($P<0.05$). Sub-clinical measles cases tended to have low mortality and compared with uninfected children, exposed children with clinical or sub-clinical measles had lower age-adjusted mortality (mortality ratio (MR)=0.20 (0.06-0.74)). Controlling for background factors had no impact of the estimates.

CONCLUSIONS:

When measles infection is mild, clinical measles has no long-term excess mortality and may be associated with better overall survival than no clinical measles infection. Sub-clinical measles is common among immunised children and is not associated with excess mortality.

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