

ANALYSIS OF HEPATITIS A VACCINATION STRATEGIES IN SOUTH KOREA CONSIDERING AGE-SPECIFIC CHARACTERISTICS

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ABSTRACT

The prevalence of hepatitis A antibodies in South Korea varies by age group. Particularly, the age group of 20-40 years exhibits a relatively lower antibody prevalence compared to other age groups, making them the most vulnerable to hepatitis A infection. Considering the characteristic of hepatitis A to have a rising fatality rate with advancing age, it is crucial to take action within this age group.

We developed an age-structured model classifying three age groups based on antibody positivity rates. The model incorporates the shifting of the population towards higher age groups due to aging over time, as well as the increased risk due to hepatitis A infection in the older age group.

We examined the future 30-year fatality trends that may occur if no additional interventions are implemented beyond the existing national vaccination program for infants. Based on this, we investigated the impact of vaccinating chronic hepatitis patients in the 20-40 age group and vaccinating the general population in the same age group, specifically assessing the reduction in fatality. Furthermore, our study analyzed the long-term and short-term effects according to vaccination participation rates in the two expanded vaccination implementation.

REFERENCES

- [1] Matheny, S. C., & Kingery, J. E. (2012). Hepatitis a. *American family physician*, 86(11), 1027-1034.
- [2] Franco, E., Meleleo, C., Serino, L., Sorbara, D., & Zaratti, L. (2012). Hepatitis A: Epidemiology and prevention in developing countries. *World journal of hepatology*, 4(3), 68.
- [3] Nainan, O. V., Xia, G., Vaughan, G., & Margolis, H. S. (2006). Diagnosis of hepatitis A virus infection: a molecular approach. *Clinical microbiology reviews*, 19(1), 63-79.
- [4] Webb, G. W., Kelly, S., & Dalton, H. R. (2020). Hepatitis A and Hepatitis E: Clinical and epidemiological features, diagnosis, treatment, and prevention. *Clinical microbiology newsletter*, 42(21), 171-179.
- [5] Melnick, J. L. (1995). History and epidemiology of hepatitis A virus. *Journal of Infectious Diseases*, 171(Supplement_1), S2-S8.
- [6] Koff, R. S. (2001). Risks associated with hepatitis A and hepatitis B in patients with hepatitis C. *Journal of clinical gastroenterology*, 33(1), 20-26.
- [7] Bell, B. P. (2002, July). Hepatitis A vaccine. In *Seminars in Pediatric Infectious Diseases* (Vol. 13, No. 3, pp. 165-173). WB Saunders.