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Serological methods are able to determine how well influenza vaccines work

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In influenza vaccine efficacy studies, virus identification is considered the ideal end point. This approach, especially if performed in large populations could be difficult to carry out and the results could depend on the level of influenza viruses' circulation. This is why serological studies are often used as surrogate methods. Here we analyze the antibody response of 181 elderly volunteers (aged ≥65 years) to 2014-15 influenza vaccine to understand if serological data are able to predict the vaccine efficacy. We compared the response of those who have or have not had a serologically evidenced influenza infection after vaccination (the volunteers that had a seroconversion on comparing hemagglutination inhibiting (HI) titers found 1 and 6 months after vaccination were considered positive for serological evidence of recent infection). Before vaccination the infected group showed lower antibody levels than uninfected volunteers, after vaccination these differences increased. Dividing the infected volunteers according to the absence or the presence of influenza like illness (ILI) and to the severity of the ILI, we found that, 1 month after vaccination, 80-90% of volunteers with severe infections or with mild infections, respectively, were unprotected (HI<40). On the other hand, among the infected volunteers not showing ILI and the non-infected volunteers, more than half were found to be protected. Although the validity of using serologic confirmation of infection rather than virus identification to determine vaccine efficacy has been questioned, our results, though obtained analyzing a small population, confirm the validity of the serological approach.

Biography

Barbara Camilloni is a Researcher at the University of Perugia, Italy. She has completed her Postgraduate School in Microbiology and Virology and PhD in molecular pathogenesis, immunology and control of transmissible agents causing major illnesses associated with poverty (malaria, tuberculosis and AIDS). Her major research work includes virological monitoring of seasonal influenza and pandemic as part of coordinated Italian surveillance network (InfluNet), evaluation of the effectiveness of influenza vaccination in the elderly and surveillance of acute flaccid paralysis (national / international program of polio eradication). virological surveillance of rotavirus infections in children.

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Page 58