

World War II Vaccination Scheme as a Determinant of Gender-Specific Differences in Anti-Tetanus Antibody Levels in the British Elderly Population

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Abstract : Tetanus is a non-transmissible, preventable bacterial disease with high mortality. In the U.K., the demographic group systematically accounting for a large proportion of the infections notified to the authorities over the years have been the elderly (> 60 years old). The 2009 seroepidemiological study for tetanus in England reports a gender-age interaction for the +70, with males having significantly higher anti-tetanus antibody levels than females. A systematic review of the literature was carried out to characterise: I. the seroepidemiology of tetanus in economically developed countries with similar immunisation schemes to the U.K., introduced in the 1960's. II. the factors leading to differential vaccine uptake between males and females in 1910-1945 (corresponding to ages of 60-95 in 2005). III. the immune response elicited by anti-tetanus immunisation in males and females IV. the value of catch-up immunisation in the elderly Similar age- and gender- differences in anti-tetanus antibody levels are noted in other countries. Gender differences in immune responses elicited by vaccination are not consistent with the finding that elder females are less well protected against tetanus compared to their male counterparts. Attention is drawn to the selective anti-tetanus immunisation scheme introduced in the U.K. in 1938, specific to the World War II conscripts. The age-specific immunity gap observed amongst the +70 could be explained as the by-product of that early scheme targetting mostly males. Introducing anti-tetanus vaccination in the +70 in the U.K. could help bridge the immunity gap between males and females and reduce the overall tetanus susceptibility of this age group.

Keywords : elderly, immunisation, gender-specific differences, seroepidemiology, tetanus, World War II

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