Background: Miall’s 1955 case-control study concluded that there was no difference in the prevalence of rheumatoid arthritis (RA) between South Wales miners and local controls. This study is likely to have been confounded by a high mortality rate in RA miners, a high rate of tuberculosis in the controls (endemic in South Wales at the time, and a known risk factor for RA) and a small control sample size. Given that a significant proportion of the Welsh RA miners (at least 25%) had rheumatoid pulmonary nodules (RPN), we have re-analysed the available data to ascertain the risk of RA in the miners with RPN using appropriate controls from the era.

Methods: Relevant literature was analysed to determine the prevalence of RA in miners with RPN, the risk of rheumatoid factor (RF) positivity in non-RA miners with RPN compared to non-RA miners with simple pneumoconiosis, the age specific male prevalence of RA in a 1957 Cornish study, and to determine the risk of RA if RPN were present.

Results: In a study of 20 miners with classical RPN (mean age 48.9 years, age range 35-72), 11/20 (55%) had RA. Prior to RA diagnosis, 43% of the chest X-rays of miners had opacities consistent with RPN. A further study of 82 non-RA miners with RPN revealed a positive RF in 42 (51%), whereas 1/32 (3%) of non-RA miners with simple pneumoconiosis had a positive RF with a calculated OR of 32.5 (95% CI 4.2 to 250, P = 0.0008). The prevalence of definite RA in West Cornwall males with a similar age to the miners studied (35-65+) was 19/10094 (0.18%). Comparing the prevalence of RA in Welsh miners with RPN to these Cornish men without RPN, reveals a striking association with RA (OR 648 95% CI 241 to 1743, P = 0.0001). The classification criteria utilised for definite RA was identical in both studies and all men were clinically examined.

Conclusion: The presence of RPN in the non-RA miners of South Wales appears to be strongly associated with a positive RF. Furthermore, RPN were strongly associated with RA. It cannot be argued that RPN occurred as a result of the RA, as 45% of the men with RPN did not have RA, and in those with both RA and RPN the nodules were apparent on chest X-rays prior to RA development. This raises the question as to whether RPN can generate RF and trigger RA. This may be relevant today as chest CT-scans have observed RPN in 30% of RA patients.

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