

Controllo di qualità delle prove spirometriche eseguite nell'ambito della sorveglianza sanitaria per esposizione a rischio lavorativo, in provincia di Viterbo

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KEY WORDS

Spirometry; quality control; medical surveillance

SUMMARY

«Quality control of spirometry tests performed in health surveillance programmes for exposure to occupational risk in the province of Viterbo (Italy)». A quality control survey on spirometry assessments carried out in a number of factories in the province of Viterbo (Lazio Region) was made by the Local Health Unit in Viterbo, as required by law 626/94 on the promotion of workers health. The survey concerned 734 measurements concerning the same number of employees from 29 different factories. Each spirometry assessment was repeated in this study according to the quality standards defined in the literature and our own results were compared with the values which had been obtained over one year during the health surveillance program (ASP). A few main functional parameters were considered according to the following criteria: percentage of agreement (tolerance $\pm 5\%$) between the two FVC, FEV₁ and FEF₂₅₋₇₅ measures or degree of discrepancy; for FEV₁/FVC ratio, the occurrence of <70 (suggestive of an obstructive lesion) and >90 values (reflecting poor reliability in the measurement of the lung volumes) in the two sets of data. Further criteria concerned the comparison of the height of the individuals (tolerance range ± 1 cm), and the comparison of the overall spirometry rating expressed as the number of tests rated normal or abnormal (during the first assessment as compared to the second). The results show poor agreement (11.4%) for FVC with as many as 85.8% underestimated values; 30.1% agreement and 64.2% underestimate for FEV₁; 17% agreement and 53.5% overestimate for FEF₂₅₋₇₅. There were 6.5% fewer <70 FEV₁/FVC ratios, and 18.3% more >90 ratios in the tests carried out in the factories as compared to our own. There was 32.9% agreement on the height, with overestimation in 63.7% of the cases. There were 12.3% "false abnormal" and 2.6% "false normal" results in the overall rating of the spirometry (as carried out by the factories compared to our own). In conclusion, the survey revealed a trend in the measurements carried out by the factories to underestimate the volumes, overestimate the flows, improperly select the theoretical reference values because of a mistake in measuring the height, to overestimate restrictive abnormalities, and underestimate the obstructive ones.

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