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Title: High fluorescence cells in pleural fluid. Association with pleural malignancy

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Body: Background: High fluorescence cells (HFC) are cells that are not sorted by the automatic cell counter Sysmex XT 4000®. The significance of HFC in pleural fluid (PF) is not well known, but they could be related with non-haematological cells, including neoplasms. Aims and objective: To evaluate if the presence of HFC in PE is associated with neoplasms. Methods: Retrospective study carried out between February-May 2012. Cell count, total protein, glucose, pH, microbiology and cytology were determined in PF. Hospital records of all patients were reviewed, and clinical, pathological, diagnostic and mortality data were recorded. X², Fisher's exact and Mann-Whitney U tests were used for statistical analysis. A cut-off point to discriminate neoplasms from other causes of pleural disease was carried out (ROC curves). Results: 148 samples of PF from 113 patients were analyzed. Age: 67 (20) years. 60% male. 44% of PF were transudates. 48 patients (32%) had an active neoplasm but a pleural cytology confirmed neoplasm in only 12 (8%). Main etiology of pleural disease: 30.6% infection; 26% heart failure; 8% pleural malignancy. The number of HFC in PE was associated with a pleural cytology of malignancy (p=0.003). A cut-off point of 64 HFC in PF is proposed to discriminate neoplasm: only 4 % of positive cytologies for malignancy had <64 HFC. Otherwise, 37,5% had >64 HFC (p=0.001). The number of HFC in pleura was also related with in-hospital mortality (p=0.02) and 30th day mortality (p=0.03). Conclusions: There is an association between the number of HFC and the cytology confirming malignancy in PF. In addition, less than 64 HFC are seldom associated with pleural malignancy.