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EDITORIAL

Pleural effusion: a challenge with multiple approaches

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Pleural effusion affects over 2 million people per year in Europe,[1] and it is caused by a wide variety of etiologies, including oncological or systemic conditions that may require acute, chronic, or even palliative treatment. In our region, the most common causes of exudative pleural effusion (PE) include parapneumonic effusion, neoplastic effusion, PE secondary to pulmonary thromboembolism (PTE), and tuberculous effusion. When no contraindications are present, and as outlined by Botana et al.[2] in the current review, the management of pleural effusion requires a stepwise approach that follows the diagnostic algorithm and involves selecting the appropriate complementary tests to establish an etiological diagnosis[3,4]. Therefore, patients with pleural pathology require a tailored diagnostic and therapeutic approach for each case.

Pleural effusion is the pathological accumulation of fluid in the pleural space. It occurs when there is an increased production or decreased reabsorption of this fluid in the pleural cavity. In this context, the analysis of various biomarkers in pleural fluid, as described by Porcel et al.[5], provides a significant line of research in the evaluation of pleural fluid as a liquid biopsy. Currently, several biomarkers are available, including soluble protein biomarkers (a combination of carcinoembryonic antigen and carbohydrate antigen 15–3), immunohistochemical markers, flow cytometry markers, and molecular biomarkers (next-generation sequencing (NGS)), Sanger sequencing, real-time polymerase chain reaction (PCR), and fluorescence in situ hybridization (FISH), which can provide essential information about the malignant nature of an effusion[6]. Additionally, diagnostic imaging techniques, such as ultrasound[7] and contrast-enhanced ultrasound, as

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described by Vollmer et al.[8], aid in guiding diagnosis and, in many cases, differentiate between infectious and neoplastic processes. Other techniques, such as thoracoscopy and the placement of tunneled pleural catheters, also play key roles in the management of these patients. In this regard, malignant pleural effusion (MPE) is one of the most relevant entities[9]. Management of MPE continues to present a clinical challenge, impacting patients' quality of life[9]. Prognosis depends on several factors, such as the type of primary cancer, stage, and performance status. Although diagnostic and therapeutic approaches to MPE have improved significantly in recent years, current treatments remain palliative, aiming to alleviate symptoms through various methods. The tunneled pleural catheter (TPC) is part of the range of treatment alternatives for symptomatic recurrent pleural effusion. Cases et al.[10] provide an update on the safety profile and improvement in quality of life that this treatment can offer patients. Romero et al.[11] review other pleural procedures, such as medical thoracoscopy, a fundamental tool for direct exploration of the pleural cavity, and pleurodesis with talc to achieve adhesion of the two pleural layers and thus prevent fluid re-accumulation, reducing the symptoms.

This issue of *BRN Reviews* aims to to provide a comprehensive and updated overview of the diagnosis and treatment of PE and MPE to guide clinicians in personalized management and optimize patient care. Specifically, MPE is a complex condition that requires a comprehensive approach to establish an accurate diagnosis, optimize oncological treatment, and improve patient quality of life. Management MPE is challenging and primarily focuses on symptom relief. It involves early evaluation of definitive pleural techniques, such as pleurodesis and tunneled pleural catheter insertion, to achieve initial symptom control. It is essential to conduct follow-ups in multidisciplinary units to monitor patients, assess treatment responses, manage disease progression, and adjust management as necessary[12].

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