

Interpretation of expert consensus 2014 on diagnosis and treatment of malignant pleural effusion

Cheng-Ping Hu

Department of Respiratory Disease, Xiangya Hospital of Central South University, Changsha 410005, China

Chinese malignant pleural effusion (MPE) diagnosis and treatment expert group first proposed the consensus of diagnosis and treatment of malignant pleural effusion in 2013, which was published in 2014. This plays a positive role in regulating, promoting and facilitating clinical and research work of MPE. Though problems were frequently encountered in diagnosis, differential diagnosis and treatment of MPE, they still have not attracted academic interests from scholars dedicated in respiratory and oncological research, as compared with lung cancer and other respiratory diseases. Due to the relative weakness of basic and clinical studies on MPE, therefore, some methods proposed in the consensus, especially therapeutic methods, are requiring evidence-based medicine to support.

In clinical practice, we should particularly concern the following key points:

- Point A: It emphasizes that malignant cells found in pleural effusion cell pellet or pathologic changes of malignant tumors observed in pleural biopsy tissue are the “Gold Standard” for determination of MPE. The sensitivity for the diagnosis of MPE by closed pleural biopsy (40~75%) is lower than that by cytology detection (62~90%). Wax block cell technology can not only improve the diagnosis rate, but also be used for immunohistochemistry, genotyping and other detection.^[1]
- Point B: Medical thoracoscopy is recommended for the differential diagnosis of unexplained exudative pleural effusion. Compared with surgical thoracoscopy, medical thoracoscopy has advantages such as local anesthesia or

sedation only and being able to take biopsy to the lesions of chest wall, diaphragm, mediastinum, pericardium membrane and lung with small trauma and high cost performance rates. After examination by medical thoracoscopy, there are still 10% cases without clarified causes. Several reasons that may lead to false-negative results should be carefully analyzed, including the size of biopsy tissue being too small, failing to detect the lesion tissue, or being unable to reach the tumor sites due to intrathoracic adhesions.^[2]

- Point C: Laboratory examinations including chest computed tomography (CT) scans, positron emission tomography-CT, pleural effusion tumor markers such as carcinoembryonic antigen, cytokeratin fragment 21-1, carbohydrate antigens (such as CA125, CA19-9), etc. are helpful in diagnosis of MPE, which also needs evidence-based medicine to support.^[3]
- Point D: The consensus proposes that for MPE patients with confirmed primary tumors but asymptomatic, clinical observational strategy is recommended, and no therapeutic interventions targeting on the effusion itself will be made.^[4]
- Point E: The main purpose of MPE treatment is to alleviate dyspnea. For patients without dyspnea and with very short life expectancy, repeated thoracentesis is generally not recommended. For patients with continuous generation of pleural effusion, an indwelling pleural drainage catheter is better than repeated thoracentesis.^[5]
- Point F: For patients with dyspnea caused by MPE that affects the quality of life, the British Thoracic Society recommends the pleurodesis treatment, followed by

Address for Correspondence:
Dr. Cheng-Ping Hu,
Department of Respiratory Disease,
Xiangya Hospital of Central South
University, Changsha 410005, China.
E-mail: huchengp28@126.com

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continuous chest drainage. According to the results of several studies out of China in recent years, combined with the national conditions of China, continuous chest drainage may be a more appropriate choice.^[6]

- Point G: The consensus recommends to use small caliber (10-14 F, 1 F = 0.33 mm) intercostal tubes to undergo pleural fluid drainage, and emphasizes slow drainage. As for prevention of re-expansion pulmonary edema, it is better to control speed than to control single drainage flow.^[7]
- Point H: There are controversies about choosing pleurodesis, and we are lacking persuasive clinical studies in China. A number of foreign studies have shown that talcum powder is the most effective pleurodesis hardener, and injection of talcum homogenates or spraying talcum powder has comparable effect. Although the British Thoracic Society recommends intercostal catheter talc homogenization, there are more data to support thorascopic talc spraying.^[8]
- Point I: Among the most commonly used hardeners, the success rate is 81~100% for talcum powder, 61% for bleomycin, and 65~76% for tetracycline and its derivatives.^[9]
- Point J: The consensus specially highlights the postural problems in patients received pleurodesis. Whether to take rotational position postoperatively or not does not affect the distribution of the drugs in the chest. Not only is rotational position time consuming, but also brings patients inconveniences and discomforts. Therefore, it is unnecessary to turn position no matter what kind of hardeners we use for patients with pleural.^[10]
- Point K: Intrathoracic injection of anticancer drugs may treat the tumor itself, while reduce exudative pleural effusion. Many domestic scholars applied intrathoracic injection of cisplatin or endostatin. There are also scholars trying interleukin-2, interferon, lentinan, *Staphylococcus aureus*, etc. However, there is insufficient evidence to support the above therapies currently.^[11,12]
- Point L: Surgical resection of the pleura is mainly used for the treatment of malignant pleural mesothelioma; it is not recommended in place of pleurodesis or indwelling catheter in treating recurrent pleural effusion.^[13]
- Point M: It is necessary to remind that MPE is a syndrome. Treatment of primary disease is an important part of MPE treatment process, and systemic therapy should be considered, if there are no contraindications.

In short, many challenges remain unsolved regarding the diagnosis and treatment of MPE. We hope to standardize clinical practice by learning the consensus. Moreover, we are expecting a large number of prospective clinical trials to provide enough evidence for the diagnosis and treatment of MPE.

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