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**NATIONAL OCCUPATIONAL HEALTH STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GBZ 77-2019

**Diagnosis of occupational acute toxic multiple organ
dysfunction syndrome caused by chemicals**

职业性急性化学物中毒性多器官功能障碍综合征的诊断

(English Translation)

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Foreword

Chapter 4 of this standard is mandatory and others are recommended.

This standard is formulated in accordance with the Law of the People's Republic this standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GBZ 77-2002 "Diagnostic Criteria for Occupational Acute Chemical Toxic Multiple Organ Dysfunction Syndrome".

Compared with GBZ 77-2002, the main changes are as follows.

- Revised the normative reference documents;
- Deleted the diagnostic principle and adjusted it to the diagnosis basis;
- Modify "diagnostic grading" to "judgment of organ dysfunction";
- Modified the diagnostic indicators of cardiac dysfunction and removed sudden cardiac death;
- Revised diagnostic indicators for respiratory dysfunction;
- Modified diagnostic indicators for renal dysfunction;

- Revised diagnostic indicators for liver dysfunction;
- Revised diagnostic indicators for blood dysfunction;
- Adjusted the content of the processing principles;
- Revised instructions for the proper use of this standard.
- Increased or decreased the chemical species of common toxic multi-organ dysfunction syndrome in Appendix B.

This standard was drafted. Shanghai Municipal Institute of Chemical Occupational Diseases, Second Hospital of Shanxi Medical University, Shanghai Branch of Tongji University Hospital (Shanghai Occupational Disease Prevention and Treatment Institute), Huashan Hospital affiliated to Fudan University, Shandong Institute of Occupational Health and Occupational Disease Prevention and Treatment, Fudan University Jinshan Hospital affiliated to the University and Qingdao Occupational Disease Prevention and Treatment Institute.

1 Scope

This standard specifies the principles for the diagnosis and management of occupational acute chemical toxic multi-organ dysfunction syndrome.

This standard applies to the diagnosis and treatment of multiple organ dysfunction syndrome caused by occupational acute chemical poisoning.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 16180 Labor ability appraisal employee injury and occupational disease disability level GBZ 59 Diagnostic criteria for occupational toxic liver disease GBZ 71 General rules for the diagnosis of occupational acute chemical poisoning GBZ 73 Occupational acute chemical toxicity diagnostic criteria for respiratory diseases GBZ 74 diagnostic criteria for occupational acute chemical toxicity heart disease GBZ 75 Occupational Acute Chemical Toxic Blood System Disease Diagnostic Criteria GBZ 76 diagnostic criteria for occupational acute chemical toxicity neurological diseases Diagnosis of GBZ 79 occupational acute toxic kidney disease

3 Diagnosis basis

3.1

Before the onset, there is a clear history of occupational exposure to a large amount of chemicals in the short term.

3.2

The clinical manifestations of toxic damage in the target organ are present.

3.3

Two or more organ dysfunctions occur simultaneously or sequentially in the course of the disease.

3.4

Organ dysfunction is in accordance with the judgment of this standard.

3.5

Exclude multiple organ dysfunction syndrome caused by non-occupational factors.

3.6

Combine workplace occupational hygiene surveys and the incidence of the same type of work.

3.7

Refer to patient biomarkers or special effect marker tests.

4.1 General

Multiple organ dysfunction can occur during the course of occupational acute chemical poisoning. According to the degree of organ dysfunction, it is divided into functional Total and functional failure.

4.2.1 Cardiovascular insufficiency

Have one of the following.

- a) mean arterial pressure (MAP) ≤ 8 kPa (60 mmHg), ≥ 6.65 kPa (50 mmHg), ≥ 4 h;
- b) new arrhythmia. multi-source ventricular premature contraction, paired ventricular premature contraction, QT interval prolongation, R on T ventricular phase Pre-contraction, Mohs II degree atrioventricular block, paroxysmal ventricular tachycardia, atrial flutter or tremor;
- c) Creatine kinase isoenzyme (CK-MB) reaches or exceeds the normal reference value by 5 times, and the enzyme activities such as LDH and AST increase accordingly (see GBZ).

- d) significant ischemic changes in the ECG (see GBZ 74);
- e) B-type natriuretic peptide (BNP) > 500 ng/L.

4.2.2 Cardiovascular Failure

Have one of the following.

- a) MAP 1000 ng/L.

4.3.1 Respiratory insufficiency

Have the following two items.

- a) When inhaling air, PaO₂ 28 times/min;
- c) PaO₂/FiO₂ ≤ 39.9 kPa (300 mmHg);
- d) Chest X-rays show shadows in both lungs, but the range is 40 mmol/L or filtered sodium excretion Rate (FENa) > 2, duration over 48 h (see GBZ 79);
- b) serum creatinine (Scr) increased more than 1 time within 48 h; or Scr exceeded 177 μmol/L (20 mg/L), within 48 h Up to 26.4 μmol/L (3 mg/L) (see GBZ 79);
- c) urine output lasts 6.0 mmol/L.

4.5.1 Liver dysfunction

Have one of the following.

- a) serum total bilirubin (STB) ≥ 51.3 μmol/L (see GBZ 59);
- b) Serum alanine aminotransferase (ALT) or bile acid is more than twice the normal value.

4.5.2 Liver failure

Have one of the following.

- a) hepatic encephalopathy (see GBZ 59);
- b) serum total bilirubin (STB) ≥ 102.0 μmol/L; or daily increase ≥ 17.1 μmol/L;
- c) Prothrombin activity (PTA) 3s, fibrinogen 2 g/L ~ 4 g/L;
- c) mild hemolytic anemia (see GBZ 75);
- d) methemoglobin >30 (see GBZ 75).

4.8.2 Blood failure

Have one of the following.