

---

# Journal of Stroke and Cerebrovascular Diseases

---

OFFICIAL JOURNAL OF THE NATIONAL STROKE ASSOCIATION  
AND THE JAPAN STROKE SOCIETY

## Contents

Volume 20, Number 4S

July-August 2011

**S1 For Readers (Stroke Specialists and General Practitioners) of the Japanese Guidelines for the Management of Stroke**

**S3 Preface for 2009 Version**

S2 *Table 1 Classification of evidence levels on stroke specified by the Committee*

S2 *Table 2 Classification of recommendation grades for stroke defined by the Committee*

S2 *Figure 1 Elements necessary for searching EBM*

S3 *Figure 2 Correlations with 5 EBMs*

S4 *Figure 3 Organization of the Joint Committee on Guidelines for the Management of Stroke*

## I. STROKE IN GENERAL

---

**S7 Overview**

**S9 1. General Management of Stroke**

*1-1. Respiratory, circulatory and metabolic management during the hyperacute phase of stroke*

(1) Respiration

(2) Blood pressure

(3) Nutrition

(4) Treatment of brain edema

*1-2. Management of complications*

(1) Complications in general (particularly infections)

(2) Gastrointestinal bleeding

(3) Fever

*1-3. Symptomatic therapy*

(1) Seizure

(2) Dysphagia

(3) Headache

**S14 2. Stroke Care Unit (SCU)/Stroke Unit (SU)**

**S16 3. Stroke Prevention in General**

*3-1. Management of risk factors for stroke in general*

(1) Hypertension

(2) Diabetes mellitus (DM)

(3) Dyslipidemia

(4) Atrial fibrillation

(5) Smoking

(6) Alcohol drinking

*3-2. Management of the group at high risk of stroke*

(1) Sleep apnea syndrome

## CONTENTS

- (2) Metabolic syndrome
- (3) Chronic kidney disease

## II. CEREBRAL INFARCTION/TRANSIENT ISCHEMIC ATTACK (TIA)

---

S31	<b>Overview</b>
S32	<b>1. Cerebral Infarction in the Acute Stage</b> <ul style="list-style-type: none"><li>1-1. <i>Thrombolytic therapy (intravenous administration)</i></li><li>1-2. <i>Thrombolytic therapy (intraarterial administration)</i></li><li>1-3. <i>Anticoagulant therapy during the acute stage</i></li><li>1-4. <i>Antiplatelet therapy in the acute stage</i></li><li>1-5. <i>Neuroprotective agents</i></li><li>1-6. <i>Management of brain edema</i></li><li>1-7. <i>Hemodilution therapy</i></li><li>1-8. <i>Fibrinogen-lowering therapy</i></li><li>1-9. <i>Steroid therapy</i></li><li>1-10. <i>Hypothermic treatment</i></li><li>1-11. <i>Hyperbaric oxygen therapy</i></li><li>1-12. <i>Prevention for deep venous thrombosis and pulmonary embolism</i></li><li>1-13. <i>Decompressive craniectomy</i></li><li>1-14. <i>Emergency carotid endarterectomy</i></li><li>1-15. <i>Cervical carotid artery revascularization during the acute stage (angioplasty/stenting)</i></li><li>1-16. <i>Other revascularization procedures during the acute stage (excluding transarterial local thrombolytic therapy)</i></li></ul>
S45	<b>2. Treatment of Cerebral Infarction According to Special Conditions</b> <ul style="list-style-type: none"><li>2-1. <i>Cerebral arterial dissection</i></li><li>2-2. <i>Aortic dissection</i></li><li>2-3. <i>Cerebral venous/venous sinus occlusion</i></li></ul>
S46	<b>3. Treatment of TIA and Prevention of Subsequent Cerebral Infarction</b>
S50	<b>4. Cerebral Infarction in the Chronic stage</b> <ul style="list-style-type: none"><li>4-1. <i>Prevention of recurrent cerebral infarction (excluding antiplatelet therapy and asymptomatic cerebral infarction)</i><ul style="list-style-type: none"><li>(1) Hypertension</li><li>(2) Diabetes mellitus (DM)</li><li>(3) Dyslipidemia</li><li>(4) Drinking/smoking</li><li>(5) Metabolic syndrome/obesity</li><li>(6) Atrial fibrillation</li><li>(7) High hematocrit levels</li><li>(8) High fibrinogen levels</li><li>(9) Antiphospholipid syndrome</li><li>(10) Hyperhomocysteinemia</li><li>(11) Congenital thrombophilia</li></ul></li><li>4-2. <i>Antiplatelet therapy for secondary prevention</i><ul style="list-style-type: none"><li>(1) Non-cardioembolic stroke (atherothrombotic stroke, lacunar stroke, and so on)</li><li>(2) Cardioembolic stroke</li></ul></li><li>4-3. <i>Anticoagulant therapy for secondary prevention</i></li><li>4-4. <i>Cerebral circulation and metabolism enhancers</i></li><li>4-5. <i>Antidepressants</i></li><li>4-6. <i>Prevention of aspiration pneumonia</i></li><li>4-7. <i>Carotid endarterectomy (CEA)</i></li><li>4-8. <i>Carotid artery stenting (CAS)</i></li></ul>

## CONTENTS

- 4-9. *Percutaneous angioplasty/stenting in the chronic stage (excluding the cervical carotid artery)*
- 4-10. *EC-IC bypass*

### III. INTRACEREBRAL HEMORRHAGE

---

- S74 **Overview**
- S75 **1. Prevention of Intracerebral Hemorrhage**
- S77 **2. Non-surgical Treatment of Hypertensive Intracerebral Hemorrhage**
  - 2-1. *Administration of a hemostatic*
  - 2-2. *Blood pressure control*
  - 2-3. *Respiratory management*
  - 2-4. *Management of brain edema and intracranial hypertension*
  - 2-5. *Management of seizures*
  - 2-6. *Management of upper gastrointestinal bleeding*
  - 2-7. *Hypothermic treatment*
  - 2-8. *Prevention of deep venous thrombosis and pulmonary embolism*
- S82 **3. Management of Chronic Intracerebral Hemorrhage**
  - 3-1. *Measures against hypertension*
  - 3-2. *Measures against seizure*
  - 3-3. *Depressive state*
- S84 **4. Surgical Indication in Patients with Hypertensive Intracerebral Hemorrhage**
- S88 **5. Treatment of Intracerebral Hemorrhage not Associated with Hypertension**
  - 5-1. *Cerebral arteriovenous malformation (AVM)*
  - 5-2. *Dural arteriovenous fistula (dural AVF)*
  - 5-3. *Cavernous angioma*
  - 5-4. *Venous angioma*
  - 5-5. *Intracerebral hemorrhage in patients with brain tumor*
  - 5-6. *Intracerebral hemorrhage (acute phase) associated with anticoagulant, antiplatelet or thrombolytic therapy*
  - 5-7. *Intracerebral hemorrhage in patients with renal failure*

### IV. SUBARACHNOID HEMORRHAGE

---

- S100 **Overview**
- S101 **1. Prevention of Subarachnoid Hemorrhage**
- S102 **2. Initial Treatment**
- S106 **3. Treatment of Cerebral Aneurysm – Selection of Therapies**
- S107 **4. Treatment of Ruptured Intracranial Aneurysm - Surgical Treatment**
  - 4-1. *Timing of surgical treatment*
  - 4-2. *Types and procedures of surgical treatments*
  - 4-3. *Perioperative surgical management*
- S110 **5. Treatment of Cerebral Aneurysm - Endovascular Treatment**
  - 5-1. *Timing of endovascular treatment*
  - 5-2. *Types and procedures of endovascular treatments*
  - 5-3. *Perioperative management of endovascular treatment*
- S113 **6. Treatment of Cerebral Aneurysm: Conservative Treatment**
  - 6-1. *Outline of conservative treatment*
  - 6-2. *Treatment of delayed cerebral vasospasm*

## CONTENTS

### V. ASYMPTOMATIC CEREBROVASCULAR DISEASES

---

- S116**      **Overview**  
**S117**      **1. Asymptomatic (Silent) Cerebral Infarction (Including Cerebral White Matter Lesions)**  
            1-1. *Asymptomatic cerebral infarction*  
            1-2. *Cerebral white matter lesions*
- S120**      **2. Asymptomatic Intracerebral Hemorrhage**  
**S121**      **3. Asymptomatic Cervical/Intracerebral Vascular Stenosis/Occlusion**  
            3-1. *Asymptomatic intracranial cerebral artery stenosis*  
            3-2. *Asymptomatic cervical carotid artery stenosis/occlusion*
- S123**      **4. Asymptomatic Cerebral Arteriovenous Malformation (AVM)**  
**S124**      **5. Unruptured Cerebral Aneurysms**  
            5-1. *Diagnosis of and screening for unruptured cerebral aneurysms*  
            5-2. *Early actions in the case of identifying unruptured cerebral aneurysms*  
            5-3. *Treatment of unruptured cerebral aneurysms*

### VI. OTHER TYPES OF CEREBROVASCULAR DISORDERS

---

- S129**      **Overview**  
**S130**      **1. Intracranial/Extracranial Arterial Dissection**  
            1-1. *Medical treatment (antithrombotic therapy) for intracranial/extracranial arterial dissection*  
            1-2. *Surgical treatment for intracranial/extracranial arterial dissection*
- S133**      **2. Moyamoya Disease (Occlusive Disease in the Circle of Willis)**  
            2-1. *Surgical treatment for moyamoya disease*  
            2-2. *Medical treatment for moyamoya disease*  
            2-3. *Treatment for patients having moyamoya disease with hemorrhagic onset manifesting as bleeding*
- S136**      **3. Paradoxical Cerebral Embolism (Including Patent Foramen Ovale (PFO))**  
**S138**      **4. Cerebral Venous and Sinus Occlusion**  
**S139**      **5. Cerebral Amyloid Angiopathy**  
**S140**      **6. Other Cerebrovascular Disorders**  
            6-1. *Fibromuscular dysplasia*  
            6-2. *Aortitis syndrome (Takayasu disease)*  
            6-3. *Hypertensive encephalopathy*  
            6-4. *Vascular dementia and vascular cognitive impairment*

### VII. REHABILITATION

---

- S145**      **Overview**  
**S146**      **1. How to Promote Stroke Rehabilitation**  
            1-1. *Flow of stroke rehabilitation*  
            1-2. *Evaluation*  
            1-3. *Prediction*  
            1-4. *Acute phase rehabilitation*  
            1-5. *Rehabilitation approaches for each stroke subtype (particularly in the acute phase)*  
            1-6. *Rehabilitation in the convalescent phase*  
            1-7. *Rehabilitation in chronic phase*  
            1-8. *Patient/family education*
- S156**      **2. Rehabilitation for Main Impairments and Problems**  
            2-1. *Rehabilitation for motor impairment and ADL*  
            2-2. *Rehabilitation for gait disorder*  
            2-3. *Rehabilitation for upper limb impairment*  
            2-4. *Rehabilitation for spasticity*

## CONTENTS

- 2-5. *Rehabilitation for the shoulder on the paralyzed side*
- 2-6. *Treatment for central pain*
- 2-7. *Rehabilitation for dysphagia*
- 2-8. *Rehabilitation for urinary disturbance*
- 2-9. *Rehabilitation for speech disorder*
- 2-10. *Rehabilitation for cognitive impairment*
- 2-11. *Rehabilitation for decreased physical fitness*
- 2-12. *Treatment for osteoporosis*
- 2-13. *Treatment for the depressive state*

## APPENDIX

---

- S181 *Table 1 Japan Coma Scale (JCS)*
- S181 *Table 2 Glasgow Coma Scale (GCS)*
- S182 *Table 3-1 modified NIH Stroke Scale (NIHSS) (2001)*
- S182 *Table 3-2 modified NIH Stroke Scale (NIHSS) (1994)*
- S183 *Table 4 Japan Stroke Scale (JSS) (Ver. 5)*
- S186 *Table 5 Japan Stroke Scale-Motor Function (JSS-M)*
- S187 *Table 6 Japan Stroke Scale-Emotional Disturbance Scale (JSS-E)*
- S188 *Table 7 Japan Stroke Scale-Depression Scale (JSS-D)*
- S189 *Table 8 Japan Stroke Scale-Depression/Emotional Disturbance Scales  
Simultaneous Evaluation Chart (JSS-DE)*
- S190 *Table 9 Japanese Modified Rankin Scale (mRS)*
- S191 *Table 10 The Stroke Impairment Assessment Set (SIAS)*
- S194 *Table 11 Recovery Stages according to Brunnstrom motor testing*
- S195 *Table 12 Barthel index*

## INDEX

---

- S197 **Subject Index**