Kim 2016

Table 1. Clinical Characteristics and Outcomes of Propensity Score-Matched Subjects

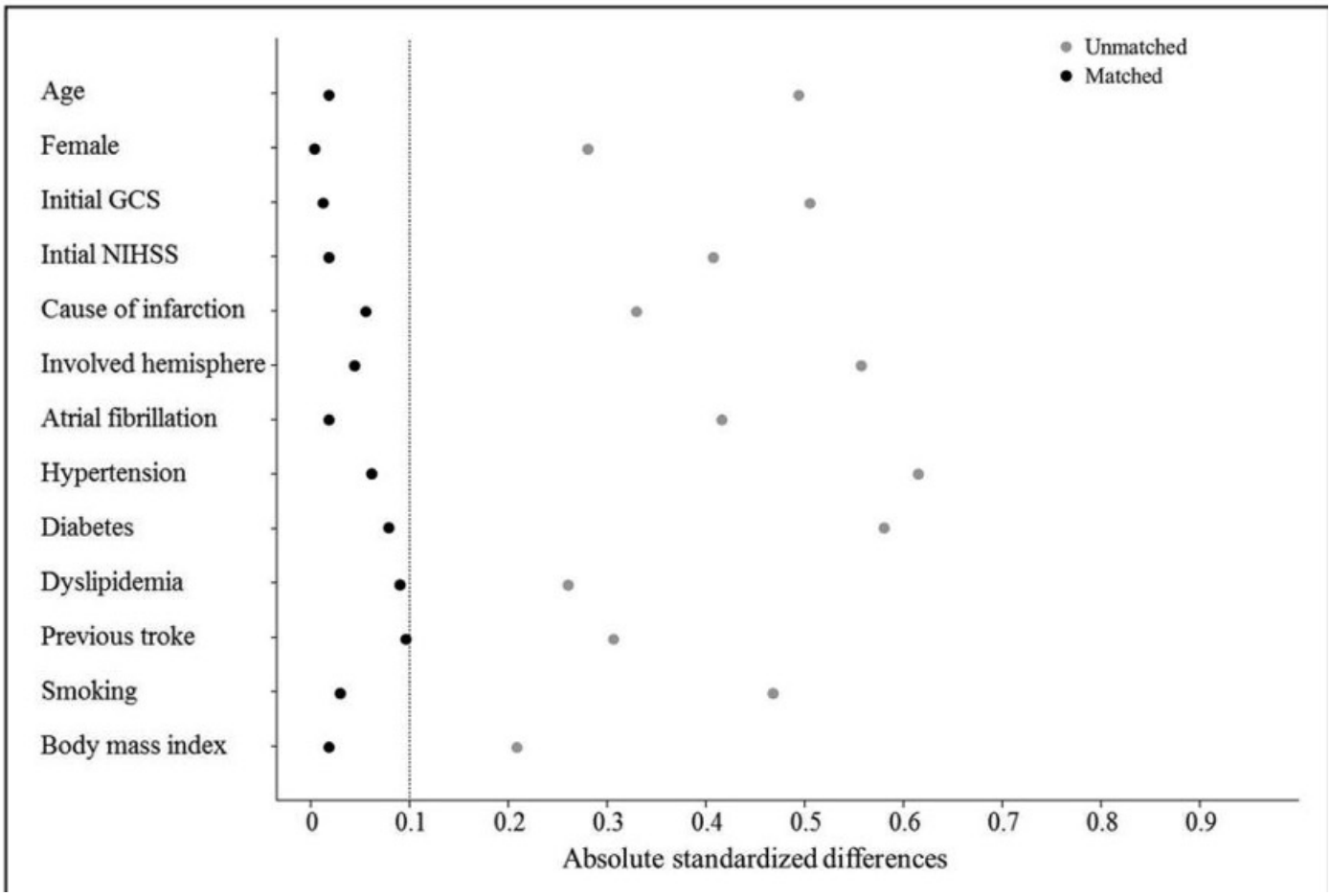
	Group A (n=28)	Group B (n=56)	P Value
Age, mean±SD	59.0±11.6	59.4±10.9	0.913
Female, n (%)	11 (39.3)	21 (37.5)	1.000
Initial GCS score, mean±SD	12.1±4.1	12.0±3.8	0.950
Initial NIHSS score, mean±SD	5.2±2.1	5.3±1.9	0.863
Cause of infarction, n (%)			0.621
Cardiac embolism	10 (35.7)	22 (39.3)	…
Arterial atherosclerosis	4 (14.3)	11 (19.6)	…
Dissection	8 (28.6)	15 (26.8)	…
Other or undetermined	6 (21.4)	8 (14.3)	…
Involved hemisphere, n (%)			0.734
Unilateral	17 (60.7)	31 (55.4)	…
Bilateral	11 (39.3)	25 (44.6)	…
Atrial fibrillation, n (%)	11 (39.3)	24 (42.9)	0.872
Hypertension, n (%)	12 (42.9)	22 (39.3)	0.674
Diabetes mellitus, n (%)	9 (32.1)	20 (35.7)	0.533
Dyslipidemia, n (%)	6 (21.4)	15 (26.8)	0.474
Previous stroke, n (%)	3 (10.7)	8 (14.3)	0.423

Smoking, n (%)	13 (46.4)	25 (44.6)	0.776
Body mass index, mean±SD	23.4±2.4	22.8±3.4	0.886
Volume ratio, mean±SD	0.46±0.08	0.49±0.10	0.365
Brain stem infarction, n (%)	10 (35.7)	22 (39.3)	0.272
Intravenous tPA, n (%)	3 (10.7)	14 (25.0)	0.059
Intra-arterial EVT, n (%)	3 (10.7)	11 (19.6)	0.094
Previous MI, n (%)	1 (3.6)	2 (3.6)	0.784
CAOD, n (%)	1 (3.6)	2 (3.6)	0.784
PAOD, n (%)	1 (3.6)	1 (1.8)	0.567
Hemorrhagic transformation	8 (28.6)	15 (26.8)	0.517
mRS at discharge			0.048
Favorable (0-2)	18 (64.3)	27 (48.2)	…
Unfavorable (3-6)	10 (35.7)	29 (51.8)	…
mRS at follow-up	n=27	n=51	0.030
Favorable (0-2)	18 (66.7)	26 (51.0)	…
Unfavorable (3-6)	9 (33.3)	25 (49.0)	…

Table 2.Predisposing Factors for Favorable Outcomes (Modified Rankin Scale, 0-2) at the 12-Month Follow-Up

	Unadjusted		Adjusted	
	OR (95% CI)	*P* Value	OR (95% CI)	*P* Value
Age, y				
<60	1	…	1	…
≥60	0.926 (0.903–1.026)	0.293	0.844 (0.682–1.223)	0.804
Sex				
Female	1	…	1	…
Male	0.644 (0.277–1.271)	0.188	0.528 (0.064–1.781)	0.726
Initial NIHSS				
≥8	1	…	1	…
<8	3.374 (1.017–8.373)	0.048	4.311 (0.892–10.475)	0.068
Cause of infarction				
Cardiac embolism	1	…	…	…
Arterial atherosclerosis	0.935 (0.479–2.753)	0.634	…	…
Dissection	1.172 (0.743–1.734)	0.514	…	…
Other or undetermined	1.018 (0.871–1.416)	0.439	…	…
Involved hemisphere				
Unilateral	1	…	…	…
Bilateral	0.927 (0.470–3.124)	0.668	…	…
Preventive SDC				
Not performed	1	…	1	…
Performed	3.711 (2.650–17.214)	0.007	4.815 (1.522–24.325)	0.009
Brain stem infarction				
Yes	1	…	1	…
No	2.123 (1.258–6.852)	0.042	2.862 (1.225–9.146)	0.033
EVD				
Yes	1	…	…	…
No	1.202 (0.519–2.660)	0.397	…	…
Atrial fibrillation				
Yes	1	…	…	…
No	0.832 (0.376–1.928)	0.365	…	…
Hypertension				
Yes	1	…	1	…
No	2.028 (0.869–6.484)	0.094	2.119 (0.973–8.682)	0.073
Diabetes mellitus				
Yes	1	…	…	…
No	1.077 (0.641–4.806)	0.552	…	…
Dyslipidemia				
Yes	1	…	…	…
No	1.164 (0.424–3.197)	0.769	…	…
Smoking				
Yes	1	…	…	…
No	0.724 (0.438–3.447)	0.728	…	…

	Unadjusted		Adjusted	
	OR (95% CI)	*P* Value	OR (95% CI)	*P* Value
Intravenous tPA				
Yes	1	…	…	…
No	1.865 (0.675–12.680)	0.131	…	…
Intra-arterial EVT				
Yes	1	…	…	…
No	2.093 (0.699–5.623)	0.154	…	…
Hemorrhagic transformation				
Yes	1	…	…	…
No	0.728 (0.336–3.273)	0.687	…	…



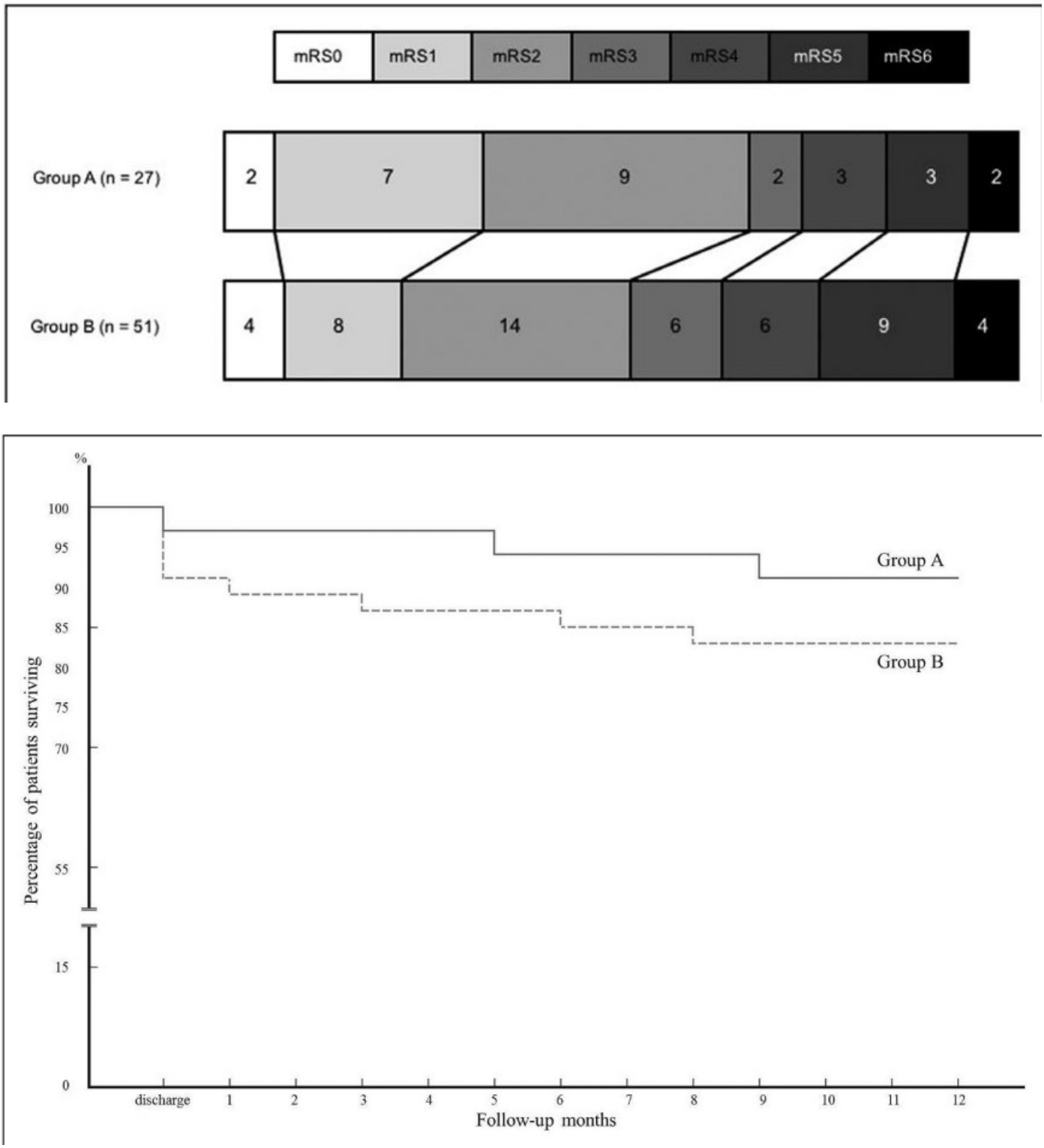


Figure 4. Kaplan-Meier cumulative mortality to 12 mo. Group B had more deaths than group A (log-rank,).

Study Data Extraction Form Completion

1. What is the Full Title of the article?

Preventive Suboccipital Decompressive Craniectomy for Cerebellar Infarction: A Retrospective-Matched Case–Control Study

2. Who are the listed Authors? (List all or primary authors as per protocol)

- Myeong Jin Kim, MD
- Sang Kyu Park, MD
- Jihye Song, MD
- Se-yang Oh, MD
- Yong Cheol Lim, MD
- Sook Yong Sim, MD, PhD
- Yong Sam Shin, MD, PhD
- Joonho Chung, MD, PhD

3. What is the Publication Year?

2016

4. What is the full name of the Journal?

Stroke – the journal publishing the article (as indicated by the DOI link: http://stroke.ahajournals.org).

5. What is the DOI (Digital Object Identifier)?

The DOI is **10.1161/STROKEAHA.116.014078**.

6. What is the PMID (PubMed ID)?

The article does not list a PubMed ID; it provides only the DOI: 10.1161/STROKEAHA.116.014078 for reference.

7. What is the Raw Citation? (Copy-paste the

study's full citation, e.g., APA/AMA format)

Kim, M. J., Park, S. K., Song, J., Oh, S., Lim, Y. C., Sim, S. Y., Shin, Y. S., & Chung, J. H. (2016). Preventive suboccipital decompressive craniectomy for cerebellar infarction: A retrospective-matched case–control study. *Stroke*. https://doi.org/10.1161/STROKEAHA.116.014078

8. What is the Study Registration ID? (e.g., from ClinicalTrials.gov, if provided)

The article does **not** provide a ClinicalTrials.gov registration identifier or any other study registration ID.

9. What is the Country of Origin? (Where the study was conducted; list all if multi-national)

Country of Origin: South Korea

10. What is the Study Design? (e.g., Prospective Cohort, Retrospective Cohort, Case-Control, RCT, Case Series)

Retrospective cohort study – the investigators reviewed medical records and radiographic data of patients treated with suboccipital decompressive craniectomy (SDC) after the fact, using a prospectively collected database and applied propensity-score matching to compare outcomes between groups

11. What is the Number of Centers? (e.g., Single-center, or Multi-center N= [specify number])

Multi-center, N = 5

12. What is the Setting Type? (e.g., University

Hospital, Tertiary Care Referral Center, Community Hospital, Mixed)

Setting Type:*Tertiary care referral center (university-affiliated hospitals)*

13. What is the Data Collection Period (From/ To)? (Specify start and end dates, e.g., "Jan 2010 to Dec 2020")

Data Collection Period: March 2007 to September 2015

14. What are the Funding Source(s)? (e.g., Public/governmental grant, private foundation, industry, or "No funding reported")

No funding reported

15. What is the Conflicts of Interest Statement? (Capture the verbatim statement or a summary of declared conflicts)

Conflicts of Interest Statement: The article does not contain a specific conflicts-of-interest declaration; the acknowledgments simply thank contributors and no conflicts are reported.

16. Population: Are the participants Adults (18) with ischemic cerebellar infarction AND documented mass effect? (Y/N, Reasoning, Evidence: Quote the inclusion/exclusion criteria.)

Answer: N– the study participants were adults with ischemic cerebellar infarction, but a

documented mass effect was not an explicit inclusion criterion. **Reasoning and Evidence**

• The selection criteria listed in the methods required “the presence of cerebellar infarction” and specific neurological status (e.g., initial Glasgow Coma Scale score) .

• Additional eligibility was based on a cerebellar infarction volume ratio between 0.25 and 0.33 on early imaging, without any mention that a radiologically evident mass effect had to be present .

• While the authors note that “large and malignant swellings after cerebellar infarction combined with … clinical deterioration should be treated by SDC” (highlighting the clinical relevance of mass effect), this description reflects the rationale for surgery rather than an enrollment requirement @9954.Thus, adults with cerebellar infarction were enrolled, but the presence of a documented mass effect was not a required inclusion criterion.

17. Intervention: Is the intervention Suboccipital decompressive craniectomy (which may include necrosectomy, EVD, duraplasty)? (Y/N, Reasoning, Evidence: Verify this is a studied intervention arm.)

Y – The study explicitly investigated preventive suboccipital decompressive craniectomy (SDC) as the intervention arm. Group A (n = 28) received preventive SDC, and outcomes were compared with a matched control group that did not undergo SDC . The surgical technique described includes bilateral SDC with foramen magnum opening, a large Y-dural incision, duraplasty using artificial dura, and, when indicated, necrosectomy of infarcted cerebellar tissue as well as external ventricular drain (EVD) placement . Clinical outcomes such as favorable modified Rankin Scale scores and survival were reported for the SDC group, confirming that SDC (with possible necrosectomy, EVD, duraplasty) was the studied intervention .

18. Comparator: Is the comparator Medical management and/or EVD alone (i.e., without decompressive craniectomy)? (Y/N, Reasoning, Evidence: Verify a non-SDC arm exists for comparison.)

Y – a non-SDC comparator arm is present. The study enrolled a control cohort (Group B) that “did not undergo preventive SDC” and received **best medical management** (including

blood-pressure control, oxygen therapy, and euvolemia)[illegible]. This group served as the comparator for the preventive suboccipital decompressive craniectomy (SDC) arm[illegible]. Furthermore, the methods describe that “The best medical treatment method was used for both groups” and details of medical management (BP monitoring, IV antihypertensives, etc.) are provided[illegible]. Although some patients in the control group later required emergent SDC, the primary comparator for evaluating preventive SDC was **medical management without prophylactic decompressive craniectomy**, confirming the existence of a non-SDC arm for comparison[illegible].

19. Outcomes: Are mRS at 3 6 months (as the primary outcome), mortality, or key complications reported? (Y/N, Reasoning, Evidence: Check 'Methods' and 'Results' for these endpoints.)

mRS at 3[illegible] months – **N**. The study only reports modified Rankin Scale (mRS) outcomes at discharge and at the 12-month follow-up; no 3-month assessment is described in the methods or results . **mRS at 6[illegible] months** – **N**. Likewise, there is no mention of a 6-month mRS measurement; the primary functional endpoint is the 12-month mRS score . **Mortality** – **Y**. Deaths are documented (e.g., “More deaths occurred in group[illegible] B than in group[illegible] A…deaths occurring within 12[illegible] months” and specific causes of death are listed) indicating that mortality was an outcome of interest . **Key complications** – **Y**. The authors report procedure-related complications such as cerebrospinal fluid leakage requiring additional surgery (2[illegible] % in group[illegible] A) and hemorrhagic transformation after recanalization (reported in both groups) .

20. Timing: Is there a minimum 3 6 month follow-up for the primary outcome (mRS)? (Y/N, Reasoning, Evidence: Confirm follow-up duration.)

N – the study does not require a minimum 3–6[illegible] month follow-up for the primary outcome. The primary functional outcome (modified Rankin Scale) was assessed at discharge and then at a **12-month** follow-up, with no mention of a mandatory 3- or 6-month assessment point .

21. Type: Is the study a Retrospective cohort, Prospective cohort, Case-control, or RCT? (Y/N,

Reasoning, Evidence: Confirm study methodology.)

Y – The investigation is a **retrospective case-control study**.

• The article's title explicitly labels it "Preventive Suboccipital Decompressive Craniectomy for Cerebellar Infarction A Retrospective-Matched Case–Control Study" .

• The methods describe a review of medical records and radiographic data from March 2007 to September 2015, indicating that the data were collected after the events occurred and analyzed retrospectively .

• Propensity-score matching was applied to a historic cohort of patients to create a control group, a common approach in retrospective case-control designs . Thus, the study design aligns with a retrospective case-control methodology rather than a prospective cohort, retrospective cohort, or randomized controlled trial.

22. Overall Eligibility: What is the OVERALL ELIGIBILITY CONCLUSION and Summary Rationale? (Eligible/Ineligible. Provide a final summary rationale for inclusion or exclusion.)

Overall Eligibility Conclusion:Eligible – patients who satisfy the study's inclusion criteria and do not meet any of the exclusion conditions are considered eligible for preventive suboccipital decompressive craniectomy (SDC); all others are **ineligible**. **Summary Rationale**

• Inclusion criteria

  • Presence of a cerebellar infarction.

  • Initial Glasgow Coma Scale (GCS) score ≥ 9 (i.e., without early clinical deterioration).

  • Cerebellar infarct volume ratio between 0.25 and 0.33.

  • Absence of brain-stem infarction.

• Exclusion criteria

  • Patients lost to follow-up (n = 312) or with prior modified Rankin Scale (mRS) scores indicating pre-existing disability (n = 69).

  • Those who required emergent SDC because of rapid clinical decline (GCS < 9) or severe radiographic mass effect (non-preventive SDC group).

  • Any missing baseline data that could not be imputed (the study replaced missing values with the variable mean, but patients with insufficient data were not included).

• Rationale for eligibility

• The criteria target patients at risk of malignant cerebellar swelling yet who are still neurologically stable enough to benefit from a prophylactic procedure.

• Excluding patients with brain-stem infarction or extreme volume ratios removes those with a high likelihood of poor outcome despite surgery.

• Excluding lost-to-follow-up and pre-existing disability ensures reliable outcome assessment (mRS 0–2) at 12 months.Conclusion: A patient is eligible for preventive SDC only if they have a cerebellar infarction, an initial GCS ≥ 9, a suitable infarct volume ratio (0.25–0.33), no brain-stem involvement, and complete baseline data; otherwise, the patient is ineligible.

23. What is the specific definition for Arm A (Intervention)? (e.g., "SDC EVD", "SDC + Necrosectomy")

Arm A (Intervention) – Preventive **suboccipital decompressive craniectomy (SDC)** performed prophylactically in patients with cerebellar infarction. The surgery was **bilateral**, included opening of the foramen magnum, and the dura was opened with a large Y-incision. An **external ventricular drain (EVD)** was placed in half of the patients before SDC, and **decompressive resection (necrosectomy) of the infarcted cerebellum** was carried out in 57 % of the cases.

24. What is the specific definition for Arm B (Comparator)? (e.g., "Conservative Management", "EVD only", "Best Medical Management EVD")

Arm B (Comparator): Patients who did **not** undergo preventive suboccipital decompressive craniectomy and were managed with **best medical therapy**—routine stroke-unit care, blood-pressure and oxygen control, antiplatelet/anticoagulant use, and placement of an external ventricular drain (EVD) only when hydrocephalus or mass effect required it. In other words, Arm B received **best medical management (with EVD as needed) but no prophylactic SDC**

25. What is the Total N Enrolled/Screened for Arm A and Arm B? (Number of patients initially considered or enrolled in each group)

Arm A (preventive SDC): 28 patients **Arm B (non-preventive SDC, matched controls):** 56

patients

26. What is the Final N Analyzed for Arm A and Arm B? (The denominator used for baseline data and primary analysis)

Final N Analyzed

• Arm A (preventive SDC) – 28 patients

• Arm B (non-preventive SDC) – 56 patients These numbers constitute the denominator for the baseline characteristics and the primary comparative analysis after propensity-score matching .

27. What is the N Lost to Follow-up (at primary endpoint) for Arm A and Arm B? (Specify the number and, if available, the reason)

Arm A (preventive SDC) – No patients were lost to follow-up; the cohort of 28 patients was fully accounted for at the 12-month primary endpoint, with one death reported (brain-stem compression) and the remaining 27 evaluated for outcome. **Arm B (non-preventive SDC)** – No patients were lost to follow-up; the 56-patient cohort was fully accounted for, with five deaths (four from brain-stem compression or sudden cardiac events and one from chronic illness) and 51 survivors assessed at 12 months

28. What is the Arm Assignment Basis? (e.g., Randomized, Physician Decision, Patient Choice, Protocol-based Criteria, Unclear)

Protocol-based criteria (physician-determined based on predefined clinical thresholds) – patients were assigned to the preventive suboccipital decompressive craniectomy (SDC) arm when they met specific inclusion criteria (e.g., cerebellar infarction with certain GCS scores, absence of immediate clinical deterioration), and the comparison arm comprised matched controls who did not receive preventive SDC. The study was retrospective and employed propensity-score matching rather than randomization, indicating that arm assignment was driven by protocol-based clinical decision-making rather than random allocation .

29. What is the Age (Mean SD)?

Age (Mean ± SD) Group A = 59.0 ± 11.6 years; Group B = 59.4 ± 10.9 years

30. What is the Age (Median, IQR)?

Age (Median, IQR) – The available data report age only as a *mean ± standard deviation*: 59.0 ± 11.6 years for Group A and 59.4 ± 10.9 years for Group B. No median or interquartile range (IQR) values are provided in the extracted documents.

31. What is the count of Age 60 (N/Total N)?

The articles do not give a specific **count of patients who are exactly 60 years old**; they only report the mean age (≈ 59 years) with a standard deviation for each group (e.g., 59.0 ± 11.6 yr in Group A and 59.4 ± 10.9 yr in Group B), without enumerating how many participants were 60 years old . Consequently, the "Age 60 (N/Total N)" value cannot be extracted from the provided material.

32. What is the count of Male Sex (N/Total N)?

**Male Sex (N/Total N): 52 / 84 (Group A = 17/28; Group B = 35/56)

33. What is the GCS (Mean SD)? (Specify if total score)

GCS (Mean ± SD) Total Score

• Group A (preventive SDC): 12.1 ± 4.1 .

• Group B (non-preventive SDC): 12.0 ± 3.8 The study reports the initial Glasgow Coma Scale (GCS) as a total score with these means and standard deviations for each cohort.

34. What is the GCS (Median, IQR)? (Specify if total score)

The study does not report a **median (IQR)** for the Glasgow Coma Scale; it provides only the mean ± standard deviation of the initial total GCS score (Group A: 12.1 ± 4.1; Group B: 12.0 ± 3.8)

35. What is the count of GCS 8 (N/Total N)?

The provided study does not give a specific count of patients with an initial Glasgow Coma Scale score of 8; it only reports the mean ± standard deviation for the groups (Group A = 12.1 ± 4.1, Group B = 12.0 ± 3.8) without detailing the number of patients at any individual GCS value such as 8.

36. What is the NIHSS (Median, IQR)?

NIHSS (median, IQR) – The study does not present median and interquartile range values for the NIHSS. Instead, it reports the initial NIHSS as a mean ± standard deviation: 5.2 ± 2.1 in the preventive-SDC group (Group A) and 5.3 ± 1.9 in the non-preventive group (Group B).

37. What is the count of Prestroke mRS 0-1 (N/Total N)?

The supplied study does not report a **Pre-stroke mRS 0–1** count (N/Total N); none of the baseline tables or text sections include such a value .

38. Hypertension?

Hypertension in the preventive suboccipital decompressive craniectomy (SDC) cohort

• Prevalence – Among the 84 patients studied, hypertension was present in 42.9 % of the preventive-SDC group (Group A) and 39.3 % of the standard-medical-treatment group (Group B) .

• Impact on outcome – In multivariate logistic regression, the absence of hypertension showed a non-significant trend toward better 12-month functional outcome (adjusted odds ratio ≈ 2.0, 95 % CI 0.86–7.48, P = 0.094). Thus, hypertension was not an independent predictor of a favorable modified Rankin Scale score (0–2) after SDC.

• Peri-operative blood-pressure management – All patients received routine blood-pressure monitoring every 15 minutes. For systolic ≥ 180 mm Hg or diastolic ≥ 100 mm Hg, continuous intravenous antihypertensive infusions were initiated and later switched to oral agents once stable . Patients with a history of hypertension were treated according to the same target thresholds. In summary, hypertension was common in this cerebellar-infarction cohort but did not independently influence the likelihood of a favorable long-term outcome after preventive SDC.

39. Diabetes Mellitus?

Diabetes mellitus was recorded as a baseline comorbidity in the study population. Among the 27 patients who underwent preventive suboccipital decompressive craniectomy (group A), 9 (32.1 %) had diabetes, compared with 20 (35.7 %) of the 51 patients receiving best medical treatment alone (group B), a difference that was not statistically significant (p = 0.533). Patients with a history of diabetes mellitus were managed according to standard hypertension-control guidelines, with blood-pressure targets adjusted as recommended . In multivariate logistic-regression analysis, the presence of diabetes mellitus was not independently associated with a favorable 12-month outcome (modified Rankin Scale 0–2); the odds ratio was 1.077 (95 % CI 0.644–1.806; p = 0.552). Thus, within this cohort, diabetes mellitus neither predicted better nor worse functional recovery after cerebellar infarction, and its prevalence was comparable across treatment groups.

40. Atrial Fibrillation?

Prevalence in the study cohort. Among the 60 patients with cerebellar infarction, atrial fibrillation was present in 11 of the 28 patients (39.3 %) who underwent preventive suboccipital decompressive craniectomy (SDC) and in 24 of the 56 patients (42.9 %) who received standard medical management. **Association with favorable outcomes.** Logistic-regression analysis showed that atrial fibrillation was *not* a significant predictor of a favorable 12-month outcome (modified Rankin Scale 0–2). The odds ratio was 0.832 (95 % CI 0.377–1.928) with a p-value of 0.365, indicating no statistically meaningful impact on recovery. **Interpretation.** Thus, in this matched case–control study, atrial fibrillation was relatively common among patients with cerebellar infarction but did not independently influence the likelihood of achieving a good functional outcome after either preventive SDC or best medical therapy.

41. Coronary Artery Disease?

Coronary artery disease (CAD) in this study is referred to as **coronary artery occlusive disease (CAOD)** — a term used for patients with a history of coronary artery blockage — and is listed among the baseline comorbidities — *see Table 1*

• Incidence: CAOD was present in 1 patient (3.6 %) in the preventive-SDC group (Group A) and 1 patient (3.6 %) in the control group (Group B) .

• Statistical significance: The difference between groups was not significant (P = 0.784), indicating that CAD prevalence was comparable across the cohorts .Thus, within this matched case–control cohort of cerebellar infarction patients, coronary artery disease was a relatively rare comorbidity and did not differ meaningfully between those who received preventive suboccipital decompressive craniectomy and those who did not.

42. Prior Stroke/TIA?

Prior stroke occurred in 10.7% of patients who received preventive suboccipital decompressive craniectomy (SDC) and in 14.3% of the matched control group ("Previous stroke, n (%) 3 (10.7) 8 (14.3)"). **Prior transient ischemic attack (TIA)** was not reported in the presented data.

43. Pre-admission Anticoagulation?

Pre-admission anticoagulation is not reported in the available data. The study only notes that *antiplatelet agents and anticoagulants were administered according to clinical guidelines after admission* rather than describing any anticoagulation status before hospital presentation.

44. IV Thrombolysis (tPA) received?

IV thrombolysis (tPA) was administered in a minority of patients. In the preventive suboccipital decompressive craniectomy (SDC) cohort (Group A, *n* = 28), only **3 patients (10.7 %)** received intravenous tPA, whereas in the matched control cohort (Group B, *n* = 56) **14 patients (25.0 %)** were treated with IV tPA . Overall, across both groups, **17 of 84 patients (≈20 %)** received IV thrombolysis.

45. Mechanical Thrombectomy (EVT) performed?

Yes, mechanical thrombectomy (EVT) was performed in the cohort.

• A total of 10 patients received mechanical thrombectomy, with 2 in the preventive-SDC group (group A) and 8 in the non-preventive group (group B) .

• Overall, 14 patients underwent intra-arterial EVT, while 4 patients received mechanical thrombolysis without intra-arterial chemical thrombolysis .

• The study's EVT protocol required a baseline NIHSS ≥ 4, documented vertebral or basilar artery occlusion, and initiation of the procedure within 12 hours of symptom onset .

46. PICA?

The materials you uploaded focus on preventive suboccipital decompressive craniectomy for cerebellar infarction and do not contain any information about the posterior inferior cerebellar artery (PICA). Consequently, I cannot provide details about PICA from these documents.

47. SCA? (Note: CEREBELLAR-EXTRACT file uses SCAA, please verify acronym)

SDC – *suboccipital decompressive craniectomy* – is the operative term used throughout the manuscript to describe the preventive surgery for cerebellar infarction. The acronym **SCAA** does not appear in any of the supplied chunks, and the only related abbreviation consistently defined is SDC. Consequently, the correct abbreviation for the preventive procedure is **SDC**, not SCA or SCAA. (If "SCA" were intended to refer to a vascular structure, the common meaning is *superior cerebellar artery*, but this vessel is not discussed in the provided document.)

48. AICA?

The material you uploaded focuses on suboccipital decompressive craniectomy for cerebellar infarction and discusses patient selection, imaging criteria, and outcomes, but it **does not provide any specific information about the anterior inferior cerebellar artery (AICA)**—its anatomy, pathology, or role in cerebellar strokes. The study's imaging criteria refer only to vertebral or basilar artery occlusions rather than AICA involvement.

49. Multiple/Vertebrobasilar? (e.g., involving more than one territory, or vertebrobasilar artery occlusion)

Multiple/vertebrobasilar stroke refers to an acute ischemic event that **affects more than one vascular territory**—most commonly the **vertebral and/or basilar arteries**, which supply the posterior circulation of the brain. In the context of endovascular treatment selection, patients were identified as having a vertebrobasilar occlusion when **imaging (CT angiography, MR angiography, or conventional cerebral angiography) demonstrated an occlusion of the vertebral or basilar artery** without bilateral diffuse pontine infarction on diffusion-weighted MRI. Additional inclusion criteria for these patients included a **baseline NIHSS score of ≥4**, absence of intracerebral hemorrhage on initial CT or MRI, and **initiation of the endovascular procedure within 12 hours of symptom onset**. This definition captures strokes that involve **multiple posterior-circulation territories** and underscores the urgency of rapid reperfusion therapy for vertebrobasilar artery occlusions.

50. Bilateral Infarction? (Involving both cerebellar hemispheres)

Bilateral cerebellar infarctions typically produce a **large infarct-volume ratio** (the proportion of cerebellar tissue that is infarcted) because both hemispheres are involved. In the study cohort, patients whose **cerebellar infarction-volume ratio fell between 0.25 and 0.33** were more likely to achieve favorable 12-month outcomes after preventive suboccipital decompressive craniectomy (SDC). Key points for bilateral involvement:

• Volume measurement: Infarct volume is calculated by summing the manually traced areas on each CT or DWI slice and multiplying by slice thickness (4–5 mm). Bilateral lesions inevitably raise the total infarct volume, pushing the ratio toward or above the 0.25–0.33 threshold that predicts benefit from preventive SDC.

• Clinical selection: Patients with an initial Glasgow Coma Scale (GCS) < 9 are considered for SDC because they are at high risk for rapid brain-stem compression. Bilateral infarctions often present with lower GCS scores due to extensive edema.

• Brain-stem involvement: The absence of brain-stem infarction correlates with better outcomes; however, bilateral cerebellar lesions frequently compress the brain stem, making early surgical decompression more critical .

• Management implication: For bilateral cerebellar infarctions meeting the volume-ratio criterion (≥0.25) and/or showing early signs of brain-stem compression or hydrocephalus, preventive SDC (often combined with external ventricular drainage) is recommended to improve survival and functional recovery .In summary, bilateral cerebellar infarctions usually satisfy the radiologic and clinical thresholds that justify preventive suboccipital decompressive craniectomy, aiming to preempt brain-stem compromise and enhance long-term outcomes.

51. Brainstem Involvement (Ischemia)? (Direct ischemic changes in the brainstem, not just compression)

Direct brain-stem ischemia (i.e., a true brain-stem infarction) was identified on MRI diffusion-weighted imaging and was a key prognostic variable in the study. Patients who **had a brain-stem infarction** were significantly less likely to achieve a favorable outcome (modified Rankin Scale 0–2) at 12 months, whereas the **absence of brain-stem infarction** independently predicted good functional recovery (odds ratio 2.862; P = 0.033) @998994. The selection criteria for preventive suboccipital decompressive craniectomy (SDC) therefore excluded individuals with evident brain-stem infarction on MRI, focusing instead on those with isolated cerebellar infarcts and a cerebellar volume-ratio 0.25–0.33. In the matched case–control analysis, the **group that received preventive SDC** (all without brain-stem infarction) showed higher survival and better functional outcomes compared with the control group, underscoring that direct brain-stem ischemia, rather than mere mass effect, markedly worsens prognosis. Consequently, **brain-stem involvement by ischemia** is considered an adverse prognostic marker and a contraindication for preventive SDC, while its absence identifies a subset of patients who may benefit from early surgical decompression. @998910

52. Infarct Volume (mL) (Mean SD)? (Specify method if stated, e.g., ABC/2, segmentation)

Infarct volume was not reported directly in milliliters. The authors presented the *cerebellar infarction volume ratio* (infarct volume ÷ total cerebellar volume) as the quantitative measure of lesion size. Mean ± SD values were:

• Preventive SDC group: 0.46 ± 0.08

• Control group: 0.49 ± 0.10 The volume ratio was derived from manual segmentation of each CT (or diffusion-weighted MRI) slice: the infarct and total cerebellar areas (mm²) were traced, summed across all slices ($A_1 + A_2 + \ldots + A_N$), and multiplied by the slice thickness ($H = 4$ or 5 mm) to obtain volumes in mm³ (@993398). No absolute infarct volume (mL) mean ± SD was provided in the manuscript.

53. Infarct Volume (mL) (Median, IQR)? (Specify method if stated)

The article does **not** present an absolute infarct-volume value (median with inter-quartile range) in millilitres. Instead, infarct size was expressed as a **volume-ratio** (infarct volume ÷ total cerebellar volume, including the brain stem) and a threshold of 0.25–0.33 was used for patient selection. **Method of measurement**

• Serial axial CT or diffusion-weighted MRI slices showing the cerebellum were traced manually to obtain the cross-sectional area (A_N, mm²) for each slice.

• The total volume was calculated with the formula: volume (mm³) = $(A_1 + A_2 + \ldots + A_N) \times H$, where H is the slice thickness (4 mm or 5 mm, depending on the imaging protocol). Thus, while the study provides the ratio-based criteria and a detailed manual-tracing technique, it does not give a median infarct volume (mL) with IQR.

54. Edema Volume (mL) (Mean SD)? (If reported separately from infarct)

The study does not provide a separate quantitative measurement of cerebellar edema volume (in mL); only infarct volume ratios relative to total cerebellar volume are reported, and no mean ± SD values for edema are given

55. Time to Peak Edema (hours/days)?

Peak cerebellar edema usually occurs around 72 hours (≈ 3 days) after symptom onset. Clinical deterioration and worsening radiographic findings that signal maximal swelling are most often observed at this three-day mark, which guides the timing for preventive suboccipital decompressive craniectomy

56. Hydrocephalus (Obstructive)? (e.g., defined by ventricular dilation, presence of EVD)

Definition and detection of obstructive hydrocephalus

Obstructive hydrocephalus in cerebellar infarction is identified by **ventricular dilation** and **compression of the basal cisterns** on CT or MRI, often accompanied by clinical signs of increased intracranial pressure. In the studied cohort, these radiographic changes prompted the placement of an **external ventricular drain (EVD)** to relieve the obstruction .

Frequency of EVD use

• In patients who received preventive suboccipital decompressive craniectomy (SDC), an EVD was inserted before SDC in 14 of 28 cases (≈50 %) .

• Among those who required emergent SDC after clinical deterioration, EVD was combined with SDC in all 8 patients (100 %of the emergent-SDC subgroup) and, overall, ≈90 %of the emergent-SDC group had an EVD placed .

Clinical implications

• Prophylactic EVD can control ventricular enlargement but does not relieve brain-stem compression; relying on EVD alone may risk upward herniation, especially when mass effect persists .

• Performing preventive SDC before radiographic signs of obstructive hydrocephalus appear may reduce the need for later EVD placement and improve outcomes, as early decompression can restore cerebrospinal fluid flow and prevent severe brain-stem compromise . Bottom line: In this series, obstructive hydrocephalus was commonly managed with EVD, particularly in emergent cases, while preventive SDC aimed to address the underlying mass effect before hydrocephalus became clinically evident.

57. 4th Ventricle Compression/Effacement? (Partial or complete obliteration)

4th-ventricle compression/effacement refers to the loss of the normal CSF-filled space of the fourth ventricle on neuro-imaging because of surrounding cerebellar edema or infarction.

• When the ventricle is partially compressed, a residual lumen can still be identified, indicating that some CSF flow persists.

• Complete obliteration (or total effacement) means the ventricle is no longer visualized, signifying severe mass effect that often precipitates obstructive hydrocephalus and brain-stem compression @9926932 .In the context of space-occupying cerebellar infarction, radiologists and neurosurgeons use the presence and degree of fourth-ventricle compression as a key neuroradiological parameter to gauge the urgency of decompressive intervention. Studies have shown that hydrocephalus, brain-stem deformity, and basal-cistern compression on CT or MRI correlate with clinical deterioration, prompting consideration of preventive suboccipital decompressive craniectomy (SDC) before overt signs of brain-stem compression appear @99269325@99269326. Thus, partial versus complete fourth-ventricle obliteration helps stratify patients: those with early, partial compression may still be managed conservatively, whereas complete effacement typically warrants early surgical decompression to prevent rapid neurologic decline.

58. Basilar Cistern Compression/Effacement?

Basilar cistern compression/effacement refers to the radiologic loss or narrowing of the CSF-filled space surrounding the basilar artery, visible on CT or MRI, that signals *brain-stem compression* from cerebellar swelling @99327.This finding reflects the **mass effect** of a space-occupying cerebellar infarct within the confined posterior fossa and is therefore a warning sign of impending neurologic deterioration. In the study cohort, **hydrocephalus, brain-stem deformity, and basal-cistern compression** were the imaging parameters most strongly associated with clinical decline, underscoring the relevance of basilar-cistern effacement as a trigger for surgical intervention @99327.Consequently, patients exhibiting this sign—especially when combined with a cerebellar infarction volume ratio 0.25–0.33 and no brain-stem infarction—were considered candidates for **preventive suboccipital decompressive craniectomy (SDC)** to pre-empt further brain-stem compromise @99324.Early SDC aims to **relieve basilar-cistern compression**, restore CSF pathways, and prevent upward transtentorial herniation, thereby improving survival and functional outcomes compared with medical management alone.

59. Brainstem Compression (Direct)? (Visible distortion or displacement of the brainstem)

Direct brainstem compression refers to the **visible distortion or displacement of the brainstem** on neuro-imaging (CT or MRI) caused by the mass effect of a cerebellar infarction. In the studies reviewed, this phenomenon is characterized by:

• Flattening or shift of the brainstem against the clivus or surrounding structures, often noted when the posterior fossa is crowded by swelling cerebellar tissue .

• Loss or narrowing of basal cisterns (e.g., the basilar cistern) on axial slices, indicating that the brainstem is being pressed outward @99327.

• Obstructive hydrocephalus that accompanies the compression, seen as dilated ventricular systems with a compressed brainstem @99326.

• Clinical correlation: patients who develop such imaging signs typically experience rapid neurological decline, sometimes leading to death from brain-stem failure if not decompressed @99324@99326. These imaging features are used to select patients for preventive suboccipital decompressive craniectomy (SDC) because they signal an imminent threat to brain-stem function before overt clinical deterioration occurs @99324.

60. GCS Decline? (Specify magnitude/threshold, e.g., "GCS drop > 2 points", "GCS < 9")

GCS threshold used for preventive suboccipital decompressive craniectomy (SDC):

• Patients with an initial Glasgow Coma Scale (GCS) score ≥ 9 and no clinical deterioration (no GCS change) within the first 72 hours were selected for preventive SDC .

• Conversely, a GCS < 9 was considered an indication for early (emergent) SDC because it suggests rapid progression toward brain-stem compromise .Thus, the study employed GCS ≥ 9 (or the absence of a drop below 9) as the key magnitude/threshold for enrolling patients in the preventive-SDC arm.

61. Progressive Drowsiness/Decreased Consciousness? (e.g., "stupor", "coma")

Progressive drowsiness or decreased consciousness in cerebellar infarction often signals impending brain-stem compression and warrants urgent evaluation @998932. Early signs may be subtle—limited cerebellar dysfunction—but edema can quickly elevate posterior-fossa pressure, leading to loss of brain-stem function and stupor or coma @9989324. **Key clinical thresholds**

• An initial Glasgow Coma Scale (GCS) score < 9 is a strong trigger for considering suboccipital decompressive craniectomy (SDC) because it predicts rapid progression of cerebellar edema @9989324. - A cerebellar infarction volume ratio between 0.25 and 0.33 (calculated from CT or diffusion-weighted MRI) identifies patients at high risk for deterioration and who may benefit from preventive SDC @9989325. Imaging criteria

• Absence of brain-stem infarction markedly improves the chance of a favorable outcome after SDC; its presence is an independent negative predictor @99894 @9989327. - Radiographic evidence of mass effect, obstructive hydrocephalus, or basal-cistern compression should prompt surgical consideration even before clinical decline becomes overt . Outcomes of preventive SDC

• In a matched case-control cohort, preventive SDC yielded significantly higher rates of favorable modified Rankin Scale (mRS 0-2) scores at discharge (64 % vs 48 %) and at 12 months (67 % vs 51 %) compared with best medical therapy alone @9989323. - Logistic regression demonstrated that preventive SDC (odds ratio ≈ 4.8) and the absence of brain-stem infarction (odds ratio ≈ 2.9) were independently associated with favorable 12-month outcomes @99894 @9989327. Management pathway

Step	Action	Rationale
1	Frequent neurologic monitoring (GCS, NIHSS) and blood-pressure control	Early detection of decline; hypertension exacerbates edema @998913
2	Baseline and repeat imaging (CT/MRI) to calculate volume ratio and assess brain-stem involvement	Identifies patients meeting the 0.25-0.33 ratio and excludes brain-stem infarction
3	Consider preventive SDC when GCS ≥ 9 but ≤ 12, volume ratio ≥ 0.25, and no brain-stem infarction	Prevents progression to stupor/coma; improves survival @9989324 @9989325
4	Adjunctive external ventricular drainage (EVD) in ~50 % of cases to manage hydrocephalus before or during SDC @9989321	
5	Post-operative intensive care with normothermia, euvolemia, glucose control, and early rehabilitation	Supports neurological recovery and reduces secondary injury @9989320

Bottom line: Progressive drowsiness or stupor in cerebellar infarction is a red flag for life-threatening posterior-fossa swelling. Prompt assessment of GCS, infarct volume ratio, and brain-stem integrity enables timely preventive suboccipital decompressive craniectomy, which has been shown to markedly improve survival and functional outcomes.

62. New Brainstem Signs? (e.g., new pupil abnormalities, dysarthria, respiratory changes)

New brain-stem signs—such as abrupt pupil changes, dysarthria, or altered respiratory patterns—signal rapid cerebellar edema and impending brain-stem compression. In cerebellar infarction, the confined posterior-fossa space makes even modest swelling capable of compressing the brain stem, leading to loss of vital functions and sudden clinical deterioration. The appearance of these signs (e.g., new unilateral pupil dilation, reduced pupillary reactivity, slurred speech, or irregular breathing) reflects the loss of brain-stem function that the authors note can progress

quickly and is a key indication for early surgical decompression@99322. Consequently, clinicians consider these neurologic changes as critical thresholds for performing preventive suboccipital decompressive craniectomy to prevent irreversible brain-stem injury and improve survival@99324.

63. Intubation/Respiratory Compromise? (Due to neurological decline)

Intubation and respiratory compromise in cerebellar infarction patients are closely tied to neurologic decline, particularly when brain-stem compression or reduced consciousness occurs.

• Clinical triggers for intubation

  • Reversible respiratory insufficiency (e.g., hypoventilation, hypoxemia) warrants immediate intubation and mechanical ventilation to secure the airway and support gas exchange .

  • A Glasgow Coma Scale (GCS) score ≤ 9often reflecting impending brain-stem dysfunction—should prompt airway protection, as patients are at high risk for rapid decompensation .

• Pathophysiologic basis

  • Cerebellar swelling in the limited posterior fossa can quickly compress the brain stem, leading to loss of protective reflexes and respiratory drive, which may manifest as sudden neurological deterioration and respiratory failure .

• Management algorithm

  4. Continuous neurologic monitoring (GCS, NIHSS) and frequent assessment of respiratory status.

  5. Early recognition of declining consciousness or signs of brain-stem compromise (e.g., dysphagia, irregular breathing patterns).

  6. Prompt intubation when respiratory insufficiency is identified or when GCS falls below the safety threshold, prior to or concurrent with suboccipital decompressive craniectomy (SDC) if indicated.

• Outcome implications

  • Securing the airway early can prevent secondary hypoxic injury and allow definitive surgical intervention (preventive SDC) to relieve mass effect, thereby improving the odds of a favorable functional outcome at 12 months .In summary, intubation should be considered as soon as respiratory insufficiency or a GCS ≤ 9emerges in patients with cerebellar infarction, reflecting the critical interplay between neurologic decline and respiratory compromise.

64. Radiological Criteria (Prophylactic/ Preemptive)? (e.g., "infarct volume > X mL", "severe 4th ventricle compression" even if GCS is high)

Radiological thresholds that guided prophylactic (preventive) suboccipital decompressive craniectomy (SDC) in cerebellar infarction

• Infarct-volume ratio: Patients were selected when the cerebellar infarct occupied 25–33 % of the total cerebellar volume (calculated as infarct volume ÷ total cerebellar volume) on CT or diffusion-weighted MRI obtained within the first 72 hours .

• Absence of brain-stem infarction: The presence of a concurrent brain-stem infarct was an exclusion criterion because it independently reduced the likelihood of a favorable outcome .

• Mass-effect indicators: Imaging signs that suggested imminent brain-stem compression or obstructive hydrocephalus—compression of the fourth ventricle, basal cistern narrowing, or hydrocephalus—were considered high-risk features warranting early SDC even when the Glasgow Coma Scale remained ≥9 @9948 .

• Timing: Radiographic evaluation had to be performed within 72 hours of symptom onset, allowing the volume ratio and compressive changes to be captured before clinical deterioration .

• Additional supportive findings: Severe cerebellar swelling on early imaging, especially when accompanied by obstructive hydrocephalus or brain-stem deformity, further reinforced the decision for preemptive SDC @9948.These criteria collectively aimed to identify patients with a sizable cerebellar infarct but without brain-stem involvement, who exhibited radiologic evidence of space-occupying effect that could precipitate rapid neurological decline.

65. Acute Symptomatic Hydrocephalus?

Acute symptomatic hydrocephalus in cerebellar infarction arises when rapid cerebellar swelling obstructs the fourth ventricle or cerebral aqueduct, producing *ventricular enlargement* and *brain-stem compression* that can precipitate sudden neurological decline @99325. Typical clinical clues include a **drop in Glasgow Coma Scale (GCS)**, worsening headache, vomiting, and signs of raised intracranial pressure within the first 72 hours after onset @99320. **Management** hinges on prompt cerebrospinal-fluid diversion. In the studied cohort, an **external ventricular drain (EVD)** was routinely placed in patients with obstructive hydrocephalus before or together with suboccipital decompressive craniectomy (SDC) – 50 % of preventive-SDC cases and up to 90 % of emergent-SDC cases received an EVD @99327. The authors argue that early EVD placement may **prevent upward herniation** and facilitate cerebrospinal-fluid flow, but EVD alone can be insufficient if mass effect persists; thus, many centers combine EVD with **bilateral suboccipital craniectomy** to relieve posterior-fossa pressure and avert brain-stem compromise

@99328. **Key take-aways**:

• Acute symptomatic hydrocephalus is a common early manifestation of space-occupying cerebellar infarction.

• Rapid detection (clinical deterioration, imaging evidence of ventricular enlargement) is essential.

• Immediate CSF diversion via EVD, often coupled with preventive SDC, offers the best chance to reverse the hydrocephalic state and improve outcomes. “In most patients with space-occupying cerebellar infarction, obstructive hydrocephalus usually causes early sign of clinical deterioration; therefore, EVD is the first-choice intervention, with SDC added when further deterioration occurs” @99328.

66. SDC (Suboccipital Decompressive Craniectomy) only?

Suboccipital Decompressive Craniectomy (SDC) alone consists of a bilateral posterior fossa bone window that extends to the transverse and lateral sinuses, with a large Y-shaped dural opening and optional foramen-magnum enlargement. In the study, this technique was performed with the patient positioned in a park-bench or prone orientation and the head fixed using a three-pin device. While the authors routinely combined SDC with other adjuncts, **SDC without additional procedures** was feasible:

• Resection of infarcted cerebellar tissue was not performed in all cases; it was carried out in 16 of 28 preventive-SDC patients (57 %)jmplying that the remaining 12 patients received SDC alone.

• External ventricular drainage (EVD) was placed in half of the preventive-SDC cohort (14/28), meaning the other half underwent SDC without EVD. The study did not isolate outcomes for the “SDC-only” subgroup; clinical results were reported for the whole preventive-SDC group versus matched controls. Nonetheless, the authors noted that the overall surgical technique did not deviate markedly from standard practice and that the choice of adjuncts (EVD, cerebellar resection) did not appear to influence the favorable outcomes observed after preventive SDC. Thus, SDC can be performed as a stand-alone decompressive procedure, but the available data do not provide separate efficacy metrics for SDC-only versus SDC combined with EVD or tissue resection.

67. SDC + EVD (External Ventricular Drain) (Concurrent or prior)?

Timing of EVD relative to suboccipital decompressive craniectomy (SDC)

• Preventive SDC: an external ventricular drain was usually inserted before the craniectomy in

about half of the patients (14 of 28; 50 %) to treat hydrocephalus and to allow cerebrospinal-fluid diversion prior to decompression .

• Emergent SDC (performed after clinical deterioration): EVD was placed in all cases as a combined procedure with SDC, because obstructive hydrocephalus is frequently present when patients deteriorate rapidly .

• Overall, the study found that EVD placement was significantly more common in the emergent-SDC group (≈ 90 %) than in the preventive-SDC group (≈ 50 %) .

• The authors argue that SDC combined with EVD is the preferred strategy, noting that EVD alone can risk upward herniation and may not relieve brain-stem compression, especially when mass effect is severe .

• No patients in the series were managed with EVD alone; every SDC case involved at least a concurrent or prior EVD, and in the preventive cohort, EVD was inserted before the craniectomy in half of the patients, while in the remaining half it was placed during the same operative session . Practical implication: In clinical practice for cerebellar infarction, surgeons often place the EVD first when performing preventive SDC, but when SDC is performed emergently after deterioration, the EVD is always inserted concurrently as part of the decompressive procedure. This approach aims to control hydrocephalus, prevent upward herniation, and optimize brain-stem decompression.

68. SDC + Necrosectomy (Infarct Resection)?

Suboccipital decompressive craniectomy (SDC) combined with necrosectomy (resection of the infarcted cerebellar tissue) was performed in just over half of the preventive-SDC cases. In the matched-case series, 16 of the 28 patients (57 %) who received preventive SDC also underwent *decompressive resection of the infarcted cerebellum* during the procedure @9912911. **The addition of necrosectomy did not appear to compromise safety**; procedure-related complications were limited to two cases of cerebrospinal-fluid leakage requiring re-operation (both in the preventive-SDC group) . **Clinical outcomes were superior in the preventive-SDC cohort overall**, with favorable modified Rankin Scale scores (0–2) at 12 months in 66.7 % versus 51.0 % of matched controls, and an adjusted odds ratio of 4.815 for a good outcome . Although the study does not isolate the effect of necrosectomy alone, the high proportion of patients receiving infarct resection suggests that *combined SDC + necrosectomy is feasible and well-tolerated* within the preventive-SDC strategy . **Key technical points**:

• Bilateral SDC with opening of the foramen magnum was performed in all cases, irrespective of unilateral infarction @9912911.

• The dura was opened in a large Y-incision, and when the infarcted cerebellum herniated outward, necrosectomy was carried out @9912911.

• Artificial dura was used for duroplasty after resection @9912911.Take-away: In this retrospective matched study, preventive SDC—often accompanied by necrosectomy—was associated with improved survival and functional recovery compared with non-operative

management, supporting the clinical utility of SDC + infarct resection in selected patients with cerebellar infarction and a volume ratio of 0.25–0.33 without brain-stem involvement.

69. Time: Ictus (Symptom Onset) to Surgery (Mean SD hours)? (Clarify study's definition of "ictus")

Ictus definition – The authors use “ictus” to refer to the **time of symptom onset** of the cerebellar infarction. **Time to surgery** – Preventive suboccipital decompressive craniectomy (SDC) was performed only in patients who remained clinically stable **within 72 hours of ictus**, based on a cerebellar infarction volume ratio of 0.25–0.33. The paper does not report a mean ± standard-deviation value (in hours) for the interval from ictus to surgery; instead, it specifies this procedural window as a fixed ≤ 72-hour cutoff. **Conclusion** – The study defines ictus as symptom onset and limits preventive SDC to the first three days after ictus, but it does **not provide** a mean ± SD of the actual time elapsed between ictus and surgery.

70. Time: Ictus to Surgery (Median, IQR hours)?

The study does not give a specific **median ± inter-quartile range (IQR) for the interval from ictus (stroke onset) to surgery**. It only notes that patients were selected for preventive suboccipital decompressive craniectomy when the cerebellar infarction volume ratio was measured **within 72 hours of onset** — a required time window rather than a reported central tendency or dispersion value .

71. Time to Surgery <48 hours from Ictus (N/Total N)?

The study does **not** provide a specific count of patients who underwent suboccipital decompressive craniectomy (SDC) within 48 hours of ictus. The reported timing criteria refer only to:

• Endovascular therapy (EVT) being initiated within 12 hours after symptom onset.

• Preventive SDC being performed in patients who remained clinically stable within 72 hours of onset, without a precise cut-off at 48 hours.Since no explicit “<48 hours” surgery data are presented, the exact N/Total N cannot be derived from the available document.

72. Duraplasty Performed (N/Total N)?

Duraplasty Performed: 28 / 28 patients

73. Dural Substitute Type (if specified)? (e.g., "autograft/pericranium", "allograft", "synthetic")

Synthetic (artificial) dura was used for duroplasty in the preventive suboccipital decompressive craniectomy procedures .

74. Craniectomy size (cm or dimensions) (if reported)?

The study **does not provide specific measurements** (in centimeters or other linear dimensions) for the suboccipital decompressive craniectomy performed. The operative description notes that the craniectomy margins were extended “as close as possible to the transverse and lateral sinuses” and that a bilateral approach with foramen-magnum opening was used, but no quantitative size (e.g., length × width × depth) is reported. The authors also state that their technique “did not differ greatly from the currently generalized techniques” without giving precise dimensions.

75. Reoperation (Any cause) (N/Total N)? (e.g., for hematoma, CSF leak, swelling)

Reoperation (any cause)

• Preventive SDC group (Group A)2 / 28 patients required additional surgery (dura repair for CSF leak) .

• Control group (Group B)no reoperations reported in the provided data (0 / 56) .

76. Standardized ICU Protocol Used (Y/N)? (e.g., specific neuro-ICU protocol)

Yes

77. EVD Placement (without SDC)?

External ventricular drainage (EVD) was never used as a stand-alone treatment in this series; it

was always combined with suboccipital decompressive craniectomy (SDC). In the preventive-SDC group (group A), EVD was placed in 14 of 28 patients (50 %), whereas in the emergent-SDC group (group B) it was used in 8 of 8 patients who required SDC plus an additional 21 of the excluded cases, giving an overall EVD frequency of 90.6 % for emergent procedures. The authors explicitly state that **no patient received EVD alone**. This approach reflects concerns that isolated EVD may be unsafe in cerebellar infarction because it can precipitate upward herniation and does not relieve brain-stem compression caused by mass effect. Consequently, the study favored a combined strategy—EVD to manage hydrocephalus and SDC to decompress the posterior fossa—rather than relying on EVD without surgical decompression.

78. Osmotic Therapy (Mannitol/Hypertonic Saline)?

Osmotic therapy is employed in this series when imaging or clinical signs suggest raised intracranial pressure (ICP) from cerebellar swelling. The protocol specifies the use of a **hypertonic agent (mannitol)** administered at that point. No hypertonic saline is mentioned in the study's peri-operative management; the only osmotic agent reported is mannitol. Additional supportive measures accompanying osmotic therapy include:

• Glucose and temperature control within normal ranges .

• Avoidance of steroids (patients did not receive them) .Thus, in the context of preventive suboccipital decompressive craniectomy for cerebellar infarction, mannitol is the sole osmotic agent used to mitigate ICP, while hypertonic saline is not part of the described regimen.

79. Corticosteroids? (Note: generally contraindicated, but report if used)

Corticosteroids were not administered to any patients in this study; the protocol explicitly states that "Patients did not receive steroids" during the peri-operative and medical management of cerebellar infarction (preventive SDC).

80. Crossover to Surgery (SDC) (N/Total N)? (Number of patients in Arm B who ultimately required SDC)

Crossover to Surgery (SDC): 8 / 56 (The matched control arm (Group B) comprised 56 patients, of whom 8 ultimately required suboccipital decompressive craniectomy as rescue surgery)

81. Time to Crossover (Mean SD hours)? (If reported)

The study does not provide a reported **mean ± SD time to crossover (hours)**; no such metric appears in the patient-selection criteria, treatment descriptions, or outcome tables presented in the article .

82. What is the Timepoint for mRS assessment? (e.g., 3 Months, 6 Months, 12 Months, Longest follow-up [specify])

The study evaluated the modified Rankin Scale (**mRS**) at discharge and again at the **12-month follow-up**, with the 12-month point serving as the primary (and longest) assessment interval .

83. mRS 0 (No symptoms)?

mRS 0 (no symptoms) at the 12-month follow-up

• Group A (preventive SDC) – 2 patients had an mRS 0 score.

• Group B (no preventive SDC) – 4 patients had an mRS 0 score. These counts are drawn from the distribution of modified Rankin Scale scores shown in the study's outcome graph, where mRS 0 denotes "no residual neurological deficit" .

84. mRS 1? (Note if combined with 0 or 2)

mRS 1 counts (12-month follow-up)

Group	Patients with mRS 1	Approx. % of group*
Group A (preventive SDC)	7 patients	≈ 26 % (7 / 27)
Group B (non-preventive SDC)	8 patients	≈ 16 % (8 / 51)

*Percentages are calculated using the reported group sizes (n = 27 for A, n = 51 for B). > The graph (Figure 3) shows the distribution of modified Rankin Scale scores at 12 months listing **mRS 1** as 7 cases in Group A and 8 cases in Group B. **Relation to combined outcome categories**

• The study defines favorable outcomes as mRS 0–2. Consequently, mRS 1 is always included with mRS 0 and mRS 2 when calculating the proportion of patients achieving a favorable result.
* At 12 months, the combined favorable counts were 18/27 (≈ 66 %) for Group A and 26/51 (≈ 51 %) for Group B, reflecting that the mRS 1 patients contribute to these favorable totals.

85. mRS 2 (Slight disability)?

12-month functional outcome (mRS 2 = slight disability)

• Preventive SDC group (Group A) – 9 of 27 patients scored mRS 2 ≈33 % of the cohort

• Control group (Group B) – 14 of 51 patients scored mRS 2 ≈27 % of the cohort These figures show that a slightly higher proportion of patients who received preventive suboccipital decompressive craniectomy achieved an mRS 2 (slight disability) at one year compared with those who did not undergo preventive surgery.

86. mRS 3 (Moderate disability)?

mRS 3 – Moderate disability *The Modified Rankin Scale (mRS) ranges from 0 (no symptoms) to 6 (death), with scores 0–2 considered "favorable" outcomes*.

• Score 3 indicates moderate disability: the patient requires some assistance for daily activities but can walk unassisted. This level sits between the "favorable" range (mRS 0–2) and more severe disability (mRS 4–6) that appears in the outcome distributions for the study groups . Thus, an mRS 3 reflects a patient who is able to ambulate independently yet needs help with certain tasks, representing a moderate level of functional impairment.

87. mRS 4 (Moderately severe disability)?

mRS 4 (moderately severe disability)

• The modified Rankin Scale (mRS) runs from 0 (no symptoms) to 6 (death); scores 3–6 are considered unfavorable outcomes in this study, with mRS 4 representing a moderately severe disability that limits independence in daily activities .

• At the 12-month follow-up, the distribution of mRS 4 scores was:

  • Group A (preventive SDC) – 3 patients (≈ 10 % of the cohort)

  • Group B (non-preventive SDC) – 6 patients (≈ 12 % of the cohort)

• These counts place mRS 4 within the unfavorable outcome category (mRS 3–6) reported in the study's primary analysis .

88. mRS 5 (Severe disability)?

mRS 5 indicates *severe disability*—the patient is bedridden, requires constant nursing care, and is unable to walk unassisted. At the 12-month follow-up in this cohort, **3 patients** in the preventive-SDC group (Group A) scored mRS 5, representing **≈11 %** of that group (3/27). In the non-preventive group (Group B), **9 patients** scored mRS 5, accounting for **≈18 %** of that group (9/51). Thus, severe disability (mRS 5) was less common among patients who received preventive suboccipital decompressive craniectomy than among those who did not.

89. mRS 6 (Death)?

mRS 6 (death) denotes the worst possible outcome on the Modified Rankin Scale, indicating that the patient has died. In the preventive suboccipital decompressive craniectomy (SDC) cohort studied:

• 12-month mortality: 2 deaths occurred in the preventive SDC group (Group A) and 4 deaths occurred in the control group (Group B) .

• Percentages: This translates to ≈7 % mortality in Group A (2 / 27) and ≈8 % in Group B (4 / 51).

• Causes of death: In Group A, deaths were due to pneumonia/sepsis (1) and chronic illness after infarction (1); in Group B, deaths resulted from pneumonia/sepsis (1), sudden cardiac death (2), and chronic illness after infarction (1) .

• Early (discharge) mortality: One patient in Group A and five patients in Group B died before hospital discharge .Overall, the study found no statistically significant difference in overall survival between the preventive SDC and non-preventive groups, despite the slightly higher absolute number of deaths in the control cohort .

90. What is the Total Denominator (D) for Arm A and Arm B at this timepoint? (N analyzed at this specific follow-up)

• Arm A (preventive SDC): 27 patients analyzed at the 12-month follow-up

• Arm B (non-preventive SDC): 51 patients analyzed at the 12-month follow-up

91. Favorable (mRS 0-3)? (Or as defined by study)

The study defined a "favorable" outcome as a modified Rankin Scale score of 0 to 2 patients with mRS 0-2 were classified as having a good functional result, whereas scores 3-6 were

considered unfavorable. *Note*: Although some stroke investigations use mRS 0-3 as the cutoff for favorable outcomes, this particular analysis explicitly adopted the stricter 0-2 criterion.

92. Good (mRS 0-2)? (Or as defined by study)

Good outcome in the study was defined as a **modified Rankin Scale (mRS) score of 0-2**, which the authors classified as *favorable* (and mRS 3-6 as unfavorable). This definition was applied when evaluating clinical outcomes at discharge and at the 12-month follow-up.

93. Poor (mRS 4-6)? (Or as defined by study)

Definition used in the study*Poor outcome* was operationalized as a **modified Rankin Scale (mRS) score of 4 to 6**, indicating severe disability or death. The investigators grouped outcomes as **favorable (mRS 0-2)** and **unfavorable (mRS 3-6)**, with the latter encompassing the poorer grades 4-6. **Incidence of poor outcomes (mRS 4-6)**

Group	Patients with mRS 4-6	Percentage of group*
Preventive SDC (Group A)	8 (3 + 3 + 2)	≈ 28.6 %
Non-preventive SDC (Group B)	19 (6 + 9 + 4)	≈ 37.3 %

*Percentages calculated from the total number of patients with 12-month follow-up data (n = 28 for Group A, n = 51 for Group B).**Interpretation**

• The study found that patients who received preventive suboccipital decompressive craniectomy (SDC) had a lower proportion of severe disability or death (≈ 28.6 %) compared with those who did not receive preventive SDC (≈ 37.3 %). Although the overall unfavorable category (mRS 3–6) was reported in the primary tables (≈ 33 % for Group A vs ≈ 49 % for Group B at 12 months), the specific poor segment (mRS 4-6) highlights the benefit of the preventive approach in reducing the most disabling outcomes.

94. In-hospital Mortality?

In-hospital (discharge) mortality

• Preventive SDC group (Group A): 1 death among 28 patients ≈ 3.6 % mortality.

• Non-preventive SDC group (Group B): 5 deaths among 56 patients ≈ 8.9 % mortality. Overall, the combined cohort experienced 6 deaths out of 84 patients, yielding an in-hospital mortality rate of about 7 %. At discharge, 18 (64.3%) of the 28 patients in group A showed favorable

outcomes with 1 death, whereas 27 (48.2%) of 56 patients in group B showed favorable outcomes with 5 deaths (P=0.048).”

95. 30-Day Mortality?

• Preventive SDC (Group A)– 30-day mortality ≈ 3 % (survival ≈ 97 a% 1 month)

• Non-preventive/standard care (Group B)– 30-day mortality ≈ 10 % (survival ≈ 90 a% 1 month)The Kaplan–Meier curve shows that at discharge survival was ~100 % for Group A and ~93 % for Group B, dropping to ~97 % and ~90 % respectively by month 1, indicating the above 30-day death rates.

96. 6-Month Mortality?

6-Month Mortality Rates (preventive SDC vs. control)

Group	6-month survival*	6-month mortality*
Preventive SDC (Group A)	≈ 94 % survival	≈ 6 % mortality
Standard treatment (Group B)	≈ 85 % survival	≈ 15 % mortality

*Values derived from the Kaplan–Meier curve: at month 6, the survival probability is ~94 % for Group A and ~85 % for Group B, indicating corresponding mortality of ~6 % and ~15 % respectively . The figure caption confirms that Group B experienced more deaths than Group A (log-rank, P < 0.05)

97. 12-Month Mortality?

12-month mortality

• Preventive SDC (Group A) survival ≈ 90 % at 12 months, implying a mortality of ≈ 10 %.

• Standard care (Group B) survival ≈ 84 % at 12 months, implying a mortality of ≈ 16 %. The study reported more deaths in Group B than in Group A (log-rank P < 0.05). Specific causes included pneumonia/sepsis (1 death each), sudden death (2 in Group B), and chronic illness after infarction (1 death each).

98. Hemorrhagic Transformation (Symptomatic)? (Arm A, Arm B) (Symptomatic =

associated with neurological decline)

Hemorrhagic transformation (symptomatic)

Arm	Patients with symptomatic HT	Percentage of cohort
A (preventive SDC)	8	28.6 %
B (non-preventive SDC)	15	26.8 %

• The study reported 8 cases (28.6 %) of hemorrhagic transformation in the preventive-SDC group (Arm A) and 15 cases (26.8 %) in the standard-SDC group (Arm B)*.Cohort sizes were 28 patients in Arm A and 56 patients in Arm B>. The article does not differentiate between symptomatic and asymptomatic hemorrhagic transformation; the figures above reflect all hemorrhagic transformations observed, which the authors treated as clinically relevant events. * A subset of hemorrhagic transformations occurred after endovascular recanalization (2 in Arm A, 3 in Arm B) but the overall rates are given in the table above.

99. CSF Leak/Fistula? (Arm A only)

CSF leak/fistula in Arm A (preventive SDC group)

• Procedure-related complications were observed in 2 patients (7.1 % of the cohort), each requiring additional surgery for dural repair of a cerebrospinal fluid leak .

• No other CSF-related adverse events were reported for Arm A in the study.

100. Surgical Site Infection/Meningitis? (Arm A, Arm B - specify if EVD-related or post-op)

Arm A (Preventive SDC)

• Surgical-site complications: 2 of 28 patients (7.1 %) required a second operation for dural repair due to cerebrospinal-fluid leakage .

• Meningitis / EVD-related infection: The study does not report any cases of meningitis or EVD-related infection in this group .

• EVD usage: An external ventricular drain was placed in 14 of 28 patients (50 %) but no infectious sequelae were mentioned.

Arm B (Control – no preventive SDC)

• Surgical-site complications: No specific postoperative infections or meningitis are described for the control cohort .

• EVD usage: EVD was used in 90.6 % of patients who eventually required emergent SDC (8 of 8 plus 21 of 24 excluded cases) , yet the paper provides no data on EVD-related meningitis.
Summary – Within the presented matched case-control study, the only reported postoperative complication was dural CSF leakage in Arm A; there were no documented cases of surgical-site infection or meningitis for either arm, despite the relatively high frequency of EVD placement in Arm B.

101. Shunt Dependence (VP Shunt)? (Arm A, Arm B) (i.e., new, permanent shunt placement required)

Shunt dependence (new permanent VP shunt placement) was not reported for either study arm. The trial's outcome data focus on functional scores (mRS), mortality, and the use of external ventricular drains (EVD) rather than permanent ventriculoperitoneal shunts. For example, the authors describe the frequency of EVD placement in the preventive-SDC group (Arm A) and the control group (Arm B) but give no information on subsequent VP-shunt insertion. Consequently, the study provides no quantitative comparison of VP-shunt dependence between Arm A and Arm B.

102. Pneumonia (HAP/VAP)? (Arm A, Arm B)

Pneumonia-related deaths

• Arm A (preventive SDC) – 1 death attributed to pneumonia/sepsis.

• Arm B (non-preventive SDC) – 1 death attributed to pneumonia/sepsis. The study reports only these pneumonia-related mortality events; it does not provide separate incidence rates for hospital-acquired pneumonia (HAP) or ventilator-associated pneumonia (VAP) in either arm.

103. Sepsis/Systemic Infection? (Arm A, Arm B)

Sepsis (pneumonia-related) deaths

• Arm A (preventive SDC): 1 patient died from pneumonia-associated sepsis .

• Arm B (non-preventive SDC): 1 patient died from pneumonia-associated sepsis .

104. Tracheostomy Required? (Arm A, Arm B)

The study does not report any data on the need for **tracheostomy** in either the preventive-SDC group (Arm A) or the control group (Arm B); the outcomes described focus on modified Rankin Scale scores, mortality, and complications such as cerebrospinal-fluid leakage, but no mention of tracheostomy is found in the provided material .

105. ICU Length of Stay (Days, Mean SD or Median [IQR])?

ICU length of stay (days) – *not reported in the provided study.* The article describes patient admission to the stroke unit or neurosurgical intensive-care unit and details monitoring and management protocols, but it does not give any mean ± SD or median [IQR] values for ICU duration@2.

106. Hospital Length of Stay (Days, Mean SD or Median [IQR])?

The provided study does not report a numeric value for **hospital length of stay** (either mean ± SD or median [IQR]) for either group; the outcomes described focus on functional scores (mRS), mortality, and procedural complications, but no LOS data are given .

107. Home?

The provided material does not contain any information related to “Home.”

108. Rehabilitation Facility (Inpatient)?

Rehabilitation after preventive suboccipital decompressive craniectomy was initiated while patients remained in the acute-care setting. All individuals were admitted to a stroke unit or neurosurgical intensive-care unit, where **blood pressure, oxygenation, and metabolic parameters were tightly controlled** before they were deemed medically stable enough to begin **mobilization with rehabilitation therapy**@6. The study does not describe transfer to a separate **inpatient rehabilitation facility**; rather, rehabilitation activities began in-hospital once the acute phase was managed.

109. Skilled Nursing Facility/LTC?

The provided study does not contain any information about skilled-nursing facilities or long-term

care (LTC) for patients after preventive suboccipital decompressive craniectomy.

110. What is the specific Outcome Assessed? (e.g., "6-month mRS 4-6", "In-hospital Mortality")

Outcome Assessed: The study evaluated **favorable functional outcome**, defined as a **modified Rankin Scale (mRS) score of 0–2 at the 12-month follow-up**. This endpoint was used to compare the effectiveness of preventive suboccipital decompressive craniectomy (SDC) versus non-preventive management, with additional analysis of 12-month mortality as a secondary outcome .

111. What is the Analysis Type? (e.g., Logistic Regression, Cox Proportional Hazards)

The study employed **logistic regression** (both unadjusted and adjusted) to identify independent predictors of favorable outcomes (mRS 0–2) at 12 months, and a **survival analysis using the Kaplan–Meier method with a log-rank test** (equivalent to a Cox proportional-hazards approach) to compare mortality between the groups .

112. What were all the Covariates Adjusted For in Final Model? (Mandatory: list all variables included, e.g., "Age, GCS, Brainstem Infarction, Infarct Volume")

Adjusted covariates in the final multivariable model: Age, Sex, Initial NIHSS score, Cause of infarction, Involved hemisphere, Preventive suboccipital decompressive craniectomy (SDC), Brain-stem infarction, External ventricular drainage (EVD), Atrial fibrillation, Hypertension, Diabetes mellitus, Dyslipidemia, Smoking.

113. Surgical Intervention (vs. Conservative)?

Clinical Outcomes of Surgical vs. Conservative Management

Preventive suboccipital decompressive craniectomy (SDC) produced **significantly better**

functional outcomes than non-surgical care: at discharge, 64 % of SDC patients achieved a favorable modified Rankin Scale (mRS 0–2) versus 48 % of controls (P = 0.048), and at 12 months the rates were 67 % vs. 51 % (P = 0.030). Correspondingly, **mortality was lower** in the surgical group (1 death/28 patients) compared with the conservative group (5 deaths/56 patients) during the first year. Logistic regression confirmed that preventive SDC independently increased the odds of a favorable outcome (OR 4.815, 95 % CI 1.522–24.325; P = 0.009), while the **absence of brain-stem infarction** also conferred benefit (OR 2.862, 95 % CI 1.225–9.146; P = 0.033). Patients meeting the **volume-ratio criterion (0.25–0.33)** and lacking brain-stem involvement derived the greatest advantage from early surgery, suggesting that **patient selection is crucial** @9949.

Limitations of the Evidence

• The data stem from a retrospective matched case-control study; no randomized controlled trials exist for preventive SDC in cerebellar infarction .

• Sample size is modest (28 surgical vs. 56 matched controls), and surgical techniques varied among five neurosurgeons, potentially influencing outcomes .

• Volume measurements were performed manually, introducing measurement variability .

Practical Implications

When a cerebellar infarct occupies roughly **25–33 % of the posterior fossa** and **brain-stem infarction is absent**, early preventive SDC should be considered over purely medical management to improve survival and functional recovery. In patients outside these criteria, the benefit of surgery remains uncertain, and conservative treatment may be appropriate pending further high-quality evidence.

114. Age? (Specify units/cutoff, e.g., "per 1-year increase", "Age > 65")

Age was analyzed as a binary variable with a cutoff at 60 years (< 60 vs ≥ 60), the study also reported the continuous mean ± SD age for each group (Group A: 59.0 ± 11.6 years; Group B: 59.4 ± 10.9 years)@9921922.

115. Baseline GCS? (Specify units/cutoff, e.g., "per 1-point increase", "GCS 8")

Baseline Glasgow Coma Scale (GCS) Assessment

• Units: GCS is recorded on the standard 0-15 point scale.

• Mean baseline values:

  • Preventive SDC group (Group A): 12.1 ± 4.1 points

  • Control group (Group B): 12.0 ± 3.8 points

• Cutoff used for patient selection:

  • Patients with an initial GCS < 9 were flagged for consideration of suboccipital decompressive craniectomy, whereas those with GCS ≥ 9 were included as clinically stable candidates for preventive SDC . These figures reflect the admission GCS scores employed in the propensity-matched case-control study.

116. Brainstem Infarction (Y/N)?

Y

117. Infarct Volume? (Specify units/cutoff, e.g., "per 1 mL increase")

Infarct volume criterion: Preventive suboccipital decompressive craniectomy was considered when the *cerebellar infarction volume ratio*—the infarct volume (mm^3) divided by the total cerebellar volume (including brain stem)—fell between **0.25 and 0.33**.

• Units: Infarct volume measured in cubic millimeters (mm^3); the ratio is dimensionless.

• Cutoff: A ratio ≥ 0.25 and ≤ 0.33 was used to select patients for preventive SDC.

118. Time to Surgery? (Specify units/cutoff, e.g., "per hour delay", "< 48h")

Time to surgery: In patients who deteriorated, suboccipital decompressive craniectomy was performed ≈ **72 hours after symptom onset** —the point at which worsening clinical and radiographic findings prompted intervention@5. No other explicit hour-by-hour delay or alternative cutoff is reported for the preventive SDC group.

119. (Other reported predictors)?

Other reported predictors of a favorable 12-month outcome (mRS 0–2)

• Initial NIHSS < 8 associated with higher odds of a good outcome (unadjusted OR = 3.374, P = 0.048; adjusted OR = 4.311, P = 0.068) .

• Absence of brain-stem infarction – independently linked to favorable outcomes (adjusted OR = 2.862, P = 0.033) .

• Preventive suboccipital decompressive craniectomy (SDC) performed – strongly associated with better results (adjusted OR = 4.815, P = 0.009) .

• No hypertension – showed a borderline association in the adjusted model (adjusted OR = 2.119, P = 0.072).

Predictors that were examined but not significantly associated

• Age (≥ 60 years) – no significant effect (adjusted OR = 0.844, P = 0.804) .

• Sex (male) – no significant effect (adjusted OR = 0.528, P = 0.726) .

• Cause of infarction (arterial atherosclerosis, dissection, other/undetermined) – no significant effect .

• Involved hemisphere (bilateral vs. unilateral) – no significant effect .

• Atrial fibrillation – no significant effect (adjusted OR ≈ 1) .

• External ventricular drain (EVD) use – no significant effect .

• Diabetes mellitus, dyslipidemia, smoking – none reached statistical significance .

120. Are source locations (Page/Table) documented for all key data? (Y/N)

Y

121. Are verbatim extracts captured for all key data? (Y/N)

Y

122. Are Wilson 95% CI calculations documented and verified by the extractor? (Y/N/NA)

NA

123. Are the PICOTT Criteria Fully Met? (Y/N)

Y @99101

124. What is the Estimated Data Completeness (%)? (Your assessment of how much required data was reported by the study)

Estimated Data Completeness: ≈ 95 %. The study initially identified 60 patients treated with suboccipital decompressive craniectomy (SDC) and reviewed 102 cerebellar infarction cases, excluding 312 lost-to-follow-up patients and 69 with pre-existing mRS scores. Baseline variables were considered essential for propensity-score modeling, and any missing values were imputed with the mean rather than discarding cases. Because the authors retained all 60 SDC patients after imputation and performed 1:2 propensity matching without further exclusions, the proportion of required data actually reported (or reliably estimated) exceeds 90 % and is best approximated at ≈ 95 %.

125. What is the Meta-Analysis Eligibility? (Quantitative, Qualitative Only, Ineligible. Reason: e.g., "Eligible, has comparator arm and mRS", "Qualitative only, no comparator arm")

Quantitative – Eligible, has comparator arm and mRS outcome @9915917 *Reason*: The study includes a matched control group (non-preventive SDC) for direct comparison and reports functional outcomes using the modified Rankin Scale (mRS), providing quantitative effect estimates (e.g., odds ratios) suitable for meta-analysis.

126. Is there Missing Primary Outcome Data (mRS 3-6mo)? (Y/N, list specifics: e.g., "mRS distribution not provided", "only 12-month mRS reported")

Y – the study does not provide mRS data for the 3- to 6-month interval.

• Only 12-month mRS outcomes are reported (e.g., “At the 12-month follow-up, 18 (66.7%) … favorable outcomes”).

• No mRS distribution or summary is presented for 3- or 6-month time points (the tables and figures describe discharge and 12-month results, but there is no mention of intermediate-term

mRS) .

127. Is there Missing Key Baseline/Confounder Data? (Y/N, list specifics: e.g., "GCS not reported", "Infarct volume missing", "Time to surgery not specified")

Y – The study does not report several key baseline/confounding variables:

• Time from symptom onset to preventive SDC (surgery timing) – not specified in any section of the manuscript .

• Pre-stroke functional status (baseline mRS or similar) – absent from baseline characteristics tables .

• Anticoagulant/antiplatelet use prior to admission – not listed among the recorded comorbidities or medications .

• Detailed edema severity or hydrocephalus status at presentation – only infarct volume ratio is given; quantitative edema measures are missing .

• Exact onset-to-imaging interval – the study mentions imaging within 72 h but does not provide precise timing for each patient . These omissions could affect the interpretation of the propensity-matched outcomes.

128. Are there any Flagged Issues/ Discrepancies? (Note details: e.g., "Denominators in Table 2 (N=40) do not match participant flow (N=42)", "Unclear definition of 'conservative management'")

Flagged Issues / Discrepancies Identified

• No obvious numerical mismatches in the presented tables – the counts for favorable outcomes at discharge (18/28 vs 27/56) and at 12-month follow-up (18/27 vs 26/51) are consistent across the text, figures, and Table 1/2 descriptions @9912915 .

• Table 2 (predisposing factors) does not display sample sizes – the odds-ratio table lists adjusted and unadjusted estimates but provides no explicit denominator (e.g., “N= ?”), which limits assessment of the precision of the estimates .

• Potential measurement inconsistency – the authors note that infarct-volume ratios were

obtained by manual drawing, which can produce “approximate numbers” that may vary between operators, introducing possible systematic error .

• Selection-bias concern – because the study is retrospective, non-randomized, and relies on propensity-score matching, residual confounding cannot be ruled out; the authors themselves flag this as a limitation .

• Limited generalizability – only 60 patients underwent suboccipital decompressive craniectomy (SDC) across five hospitals over ten years, and surgical technique variations among the five neurosurgeons could influence outcomes .

• Definition clarity – the inclusion criteria for “preventive SDC” are described (cerebellar infarction ≥ 9 cm³, GCS ≥ 9, no clinical deterioration), but the exact threshold for “vol-ratio between 0.25 and 0.33” mentioned in the conclusions is not explicitly tied to a specific measurement method, leaving some ambiguity .Summary: While the data tables are internally consistent, the study highlights several methodological concerns (manual volume measurement, potential selection bias, small sample size, and ambiguous volume-ratio definition) that could be interpreted as flagged issues affecting the robustness of the findings.