

11. Mobilisation

11.1 Early mobilisation and optimum positioning after acute stroke

Evidence table								
MOBIL 2: Does placing patients in specific positions reduce mortality and morbidity?								
Reference	Study type Evidence level	Number of patients	Patient characteristi cs	Intervention	Comparison	Length of follow-up	Outcome measures	Source of funding
Tyson SF, Nightingale P. The effects of position on oxygen saturation in acute stroke: a systematic review. [Review] [19 refs]. <i>Clinical Rehabilitation</i> . 2004; 18(8):863-871. Ref ID: 2585	Systematic Review (last search 2004) 3	N=183 (4 studies, of which 3 RCTs)	<p>Patients with acute stroke (less than 48 hrs to 7 days or less)</p> <p>Exclusion criteria: previous condition predisposing to hypoxic events, unable to walk or change position unaided, previous lung disease, heart failure, irregular breathing</p>	<p>1) Sitting in chair, sitting up in bed (backrest at 70 deg), high side-lying (45 deg) on weak and sound side. 1hr in each position</p> <p>2) Sitting in chair, propped up in bed, weak and sound-lying, supine. 10 min in each position</p> <p>3) Sitting up, supine, side-lying on weak and sound side. 20 min in each position</p> <p>4) Lying (supine or side lying), propped up in bed (45) in set order. 30 min-1 hr in each</p>	See intervention	Not reported	<p>1) Respiratory rate at 5 and 55 mins, mean SaO₂, no. of desaturation episodes (<90% for 3 min)</p> <p>2) Continuous monitoring of SaO₂, and heart rate for 10 min – mean values. Hypoxia = SaO₂ < 90% for 2 min+</p> <p>3) Sitting up, supine, side-lying on weak and sound side. 20 min in</p>	None reported

				position			each position	
							4) Lying (supine or side lying), propped up in bed (45 deg) in set order. 30 min-1 hr in each position	
<p>Effect</p> <p>*Results by study (see intervention, outcomes above)</p> <p>(No pooled results/ meta-analysis due to study heterogeneity)</p> <ol style="list-style-type: none"> 1) No differences in any outcome measures for any position. No relationship between SaO2, weakness, stroke severity or level of consciousness 2) Higher SaO2, and HR when sitting in a chair than other position for those who could sit out. No difference between lying on weak or sound side, but lying on left side – greater decrease SaO2 and HR than right side-lying. Desaturation most likely in left side-lying. Desaturation most likely in left-sided lying, severe strokes, right hemiplegia and co-morbid chest disease. Hypoxia-inducing positions = slumped sitting in bed and left-side lying 3) No difference found in any position 4) No difference in any outcome measure for any position 								
Turkington PM, Bamford J, Wanklyn P et al. Prevalence and predictors of upper airway obstruction in the first 24 hours after acute stroke. <i>Stroke</i> . 2002; 33(8):2037-2042. Ref ID: 93	Cohort single centre UK 3	N=147	<p>Patient with acute stroke (24 hrs since onset)</p> <p>Patient population (study and all stroke population): mean 77 yrs, gender 44% male, BMI 23.6, neck circumference 38.3 cm</p>	<p>N=120 (study group)</p> <p>The patient was positioned according to ward protocol</p> <p>Positions compared: Supine, supine left and supine right</p> <p>Monitoring: Alice 4 sleep system</p>	<p>N=1634 (all patients admitted with stroke in Leeds).</p> <p>Comparison only to determine generalisability of study population</p> <p>Positions compared: Supine, supine</p>	24 hrs	<p>Respiratory disturbance index</p> <p>RDI calculated as the number of apneas and hypopneas per hour of study</p> <p>Apnea defined as a cessation in</p>	Stroke Association

			<p>Study population: History of snoring 25.8% and 4.2% reported previous witnessed apneic episodes. Mean Epworth score 6 and unsafe swallow 51.7%</p>	<p>(Respironics) and were started as soon as possible after admission and continued up to a total of 24 hrs or until the patient requested the equipment be removed (minimum 6 hrs of data recorded during the night). Oronasal airflow (thermistor), heart rate (ECG), oxygen saturation (finger probe), abdominal and respiratory effort (strain gauge), snoring (microphone), body position (sensor detecting 8 points on compass on thoracic strain gauge) and light intensity (light meter)</p> <p>Patients unable to tolerate full monitoring were studied with the use of pulse oximetry (Pulse</p>	<p>left and supine right</p>		<p>airflow of \geq seconds and obstructive if maintenance of thoracic or abdominal effort, central if there was no maintenance of thoracic or abdominal effort or mixed if combination of the two Hypopnea defined as 50% reduction in airflow associated with a 4% oxygen desaturation</p>	
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Effect

*Respiration

79%, 61% and 45% of the patients had respiratory disturbance index greater than 5, 10 and 15 events per hour, respectively. Patients had a significantly higher respiratory disturbance index (RDI) when nursed in a supine (RDI 29 events per hour; $p < 0.0001$), supine left (29 events per hour; $p < 0.05$), and supine right (24 events per hour; $p < 0.03$) than in any other position (prone, prone left and prone right).