**Table I:** Carotid duplex ultrasonography criteria used for the categorization of carotid stenosis

|  |  |  |
| --- | --- | --- |
| **Category** | **Ultrasound Criteria** | **Impression** |
| Normal | ICA - no plaque | Normal |
|  - PSV<130 cm/sec  |
|  - no spectral broadening |
| 1-49% diameter stenosis | ICA - usually, small amount of plaque | Mild disease |
|  - PSV<130 cm/sec  |
|  - ICA/CCA ratio < 1.6 |
|  - variable amount of spectral broadening |
| 50-69% diameter stenosis | ICA - usually, moderate amount of plaque | Moderate disease |
|  - 130 ≤ PSV < 230 cm/sec |
|  - 1.6 ≤ ICA/CCA ratio < 3.2 |
|  - usually, moderate spectral broadening |
| 70-99% diameter stenosis | ICA - usually, large amount of plaque | Severe disease |
|  - PSV ≥ 230 cm/sec |
|  - ICA/CCA ratio ≥ 3.2 |
|  - EDV ≥ 70 cm/sec |
|  - marked spectral broadening |
| Occlusion | ICA - no Doppler signal | Occlusion |
| CCA - high resistance pattern |
| ECA - may be internalized |

PSV- Peak systolic velocity
EDV- End diastolic velocity
ICA- Internal carotid artery, CCA- Common carotid artery, ECA- External carotid artery

**Table II**: Univariate analysis for factors associated with progression of carotid stenosis

|  |  |  |  |
| --- | --- | --- | --- |
|  | **No progression**(112) | **With progression**(237) | **p-value** |
| Age, years | 68.8(63.9-76.3) | 69.8(66-74.2) | 0.134 |
| Male sex | 45(40.2%) | 100(42.2%) | 0.721 |
| **PAST MEDICAL HISTORY** |  |  |  |
| Coronary artery disease | 69(61.6%) | 166(70.3%) | 0.105 |
| Myocardial Infarction | 27(24.1%) | 66(28%) | 0.448 |
| Atrial fibrillation | 28 (25%) | 69 (29.2%) | 0.411 |
| Hypercholesterolemia | 110 (98.2%) | 228 (96.6%) | 0.411 |
| Hypertension | 106 (94.6%) | 231 (97.9%) | 0.120 |
| Diabetes mellitus | 42 (37.5%) | 75 (31.8%) | 0.292 |
| Chronic kidney disease | 36 (32.1%) | 106 (44.9%) | 0.024 |
| Peripheral artery disease | 45 (40.2%) | 127 (53.8%) | 0.018 |
| PTCA/CABG | 25 (22.3%) | 88 (37.4%) | 0.005 |
| Stroke/TIA | 10 (8.9%) | 22 (9.3%) | 0.906 |
| Active smoking | 39 (35.8%) | 96 (41.2%) | 0.295 |
| Family history of stroke | 35 (32.1%) | 75 (32.2%) | 0.988 |
| Peak BMI | 28.9(26.1-33) | 29.3(25.8-32.7) | 0.617 |
| **MEDICATIONS** |  |  |  |
| Statins | 100 (91.7%) | 225 (97%) | 0.040 |
| Antihypertensives | 103 (94.5%) | 220 (94.4%) | 0.978 |
| Warfarin | 44 (40.7%) | 81 (34.9%) | 0.334 |
| Aspirin | 103 (93.6%) | 233 (100%) | 0.977 |
| Clopidogrel | 40 (36.7%) | 96 (41.2%) | 0.428 |
| **LABORATORY** |  |  |  |
| Peak Hb1Ac | 6.6(4.8-15.3) | 6.2(5.7-7.9) | 0.378 |
| Peak creatinine | 1.4(1.1-1.9) | 1.6(1.2-2.2) | 0.184 |
| Peak total cholesterol | 230(194-258) | 228(195-258) | 0.689 |
| Peak triglycerides | 195(139-260) | 207.5(150-291) | 0.065 |
| Lowest HDL | 39(33-47) | 37(31-47) | 0.624 |
| Peak LDL | 143(118-171) | 144(116-171) | 0.933 |
| Lowest LDL | 72(54-87) | 68(52-84) | 0.161 |
| **RADIOLOGICAL DATA** |  |  |  |
| Left carotid stenosis | 50(44.6%) | 124(52.3%) | 0.181 |
| Moderate baseline stenosis | 38(33.9%) | 109(46%) | 0.032 |
| Severe baseline stenosis  | 42(37.5) | 49(20.7) | 0.001 |
| Intracranial stenosis | 12(10.7%) | 45(19.1%) | 0.051 |
| Ulcerated plaque | 5(4.5%) | 18(7.7%) | 0.269 |
| Silent chronic infarcts | 25(22.5%) | 56(24%) | 0.757 |
| **FOLLOW UP** |  |  |  |
| Years of follow up | 13(9-14) | 13(10-14) | 0.087 |
| Number of imaging studies | 6.5(4-8) | 8(6-11) | <0.001 |
| Symptoms at last f/u | 22 (19.6%) | 50 (21.1%) | 0.754 |
| BMI at time of symptoms | 28.5(24.3-33.2) | 28(23.9-29.9) | 0.215 |
| Carotid revascularization | 38 (33.9%) | 80 (33.8%) | 0.975 |

Date expressed as n (%) or median (IQR)

**Table III**: Univariate analysis for factors associated with intervention of carotid arteries

|  |  |  |  |
| --- | --- | --- | --- |
|  | **No intervention**(231) | **Intervention**(118) | **p-value** |
| Age | 70.2(65.4-75.8) | 68.9(64.6-73.3) | 0.484 |
| Male sex | 128 (55.4%) | 76 (64.4%) | 0.108 |
| **PAST MEDICAL HISTORY** |  |  |  |
| Coronary artery disease | 147 (63.9%) | 88 (74.6%) | 0.045 |
| Myocardial infarction | 61 (26.5%) | 32 (27.1%) | 0.905 |
| Atrial fibrillation | 59 (25.7%) | 38 (32.2%) | 0.198 |
| Hypercholesterolemia | 221 (96.1%) | 117 (99.2%) | 0.141 |
| Hypertension | 222 (96.5%) | 115 (97.5%) | 0.638 |
| Diabetes mellitus | 87 (37.8%) | 30 (25.4%) | 0.021 |
| Chronic kidney disease | 84 (36.5%) | 58 (49.2%) | 0.024 |
| Peripheral artery disease | 104 (45.2%) | 68 (57.6%) | 0.029 |
| PTCA/CABG | 69 (30%) | 44 (37.6%) | 0.154 |
| Stroke/TIA | 19 (8.3%) | 13 (11%) | 0.401 |
| Active smoking | 65 (28.8%) | 25 (21.6%) | 0.025 |
| Family history of stroke/TIA | 73 (32.3%) | 37 (31.9%) | 0.940 |
| Peak BMI | 29.1(25.8-32.7) | 29(26.4-33) | 0.308 |
| **MEDICATIONS** |  |  |  |
| Statins | 216 (96%) | 109 (94%) | 0.403 |
| Antihypertensives | 218 (96.5%) | 105 (90.5%) | 0.029 |
| Warfarin | 75 (33.2%) | 50 (43.9%) | 0.055 |
| Aspirin | 223 (98.2%) | 113 (97.4%) | 0.612 |
| Plavix | 97 (42.9%) | 39 (33.6%) | 0.097 |
| **LABORATORY** |  |  |  |
| Peak Hb1Ac | 6.5(5.7-8) | 6.1(5.7-6.9) | 0.403 |
| Peak creatinine | 1.5(1.2-2.1) | 1.6(1.3-2.1) | 0.491 |
| Peak total cholesterol | 230(198-259) | 226(187-257) | 0.184 |
| Peak Triglycerides | 205(145.5-289) | 205(149-268) | 0.744 |
| Lowest HDL | 38.5(32-47) | 37(32-45) | 0.370 |
| Peak LDL | 144(119-170.5) | 143(105-171) | 0.268 |
| Lowest LDL | 71(52-90) | 65(51-77) | 0.013 |
| **RADIOLOGICAL DATA** |  |  |  |
| Left carotid stenosis | 115 (49.8%) | 59 (50%) | 0.970 |
| Moderate baseline stenosis | 104(45.1%) | 43(36.4%) | 0.123 |
| Severe baseline stenosis | 35(15.2%) | 56(47.5%) | <0.001 |
| Moderate maximal stenosis | 89(38.5%) | 2(1.7%) | <0.001 |
| Severe maximal stenosis | 88(38.1) | 108(91.5%) | <0.001 |
| Progression of stenosis | 157(68%) | 80(67.8%) | 0.975 |
| Intracranial stenosis | 29 (12.6%) | 28 (23.9%) | 0.008 |
| Ulcerated plaque | 11 (4.8%) | 12 (10.3%) | 0.058 |
| Silent chronic infarcts | 46 (20.4%) | 35 (29.7%) | 0.0546 |
| **FOLLOW UP** |  |  |  |
| Years of follow up | 13(10-14) | 13(10-14) | 0.095 |
| Number of imaging studies | 7(5-10) | 8(6-12) | <0.001 |
| Symptoms at last f/u | 27 (11.7%) | 45 (38.1%) | <0.001 |
| BMI at time of symptoms | 26.4(22.8-29.7) | 28.2(24.9-30.4) | 0.075 |
| Years for intervention | 0 | 4(2-7) | <0.001 |
| LDL at time of surgery | 107(95-136) | 112(79-133) | 0.181 |

Date presented as n (%) or median (IQR)