Regional cerebral blood flow (rCBF), regional cerebral metabolic rate of oxygen (rCMRO2) and regional oxygen extraction fraction (rOEF) were measured on patients with senile dementia using the 0-15 steady state method. Regional cerebral blood volume (rCBV) was also measured on each patient, and with the rCBV values, the correction was made for rCMRO2 and rOEF, using the method described by Lammerstma. The values of rCBF and rCMRO2 of elder normal subjects in each region were as follows; frontal cortex: 60.8±4.15, temporal: 68.8±4.89, occipital: 55.0±3.86, parietal: 50.8±3.49, and thalamic: 63.0±3.66. Those of MlD were as follows; frontal: 30.0±2.26, temporal: 36.7±2.73, occipital: 30.2±2.50, parietal: 35.4±2.62, and thalamic: 37.3±2.36. The rCBF and rCMRO2 of MlD in frontal, temporal, occipital cortex and thalamus were significantly low compared to those of normal subjects. The decrease of rCBF and rCMRO2 in MlD were remarkably in frontal and temporal cortex, especially in frontal cortex. The impairment of mental functions in MlD should be caused by the decreased activities of frontal cortex. Two cases of MlD were examined before and after treatment, and they showed the increase of rCBF and rCMRO2 after treatment.