

## **EFFECT OF OZONE THERAPY ON CEREBRAL AND COMMON CAROTID BLOOD FLOW**

Bernardino Clavo, M.D.,<sup>1,2,7</sup> Luis Catalá, M.D.,<sup>3,7</sup> Juan L. Pérez, B.Sc.,<sup>2,4,7</sup> Laura López, R.N.,<sup>1,7</sup> Gerardo Suárez, R.N.,<sup>1,7</sup> Marta Lloret, Ph.D.,<sup>1,2,7</sup> Victor Rodríguez, M.D.,<sup>5</sup> Francisco Robaina, Ph.D.,<sup>2,6,7</sup>

Departments of <sup>1</sup>Radiation Oncology, <sup>2</sup>Research Unit, <sup>3</sup>Radiology, <sup>4</sup>Medical Physics and <sup>6</sup>Chronic Pain Unit, from Dr. Negrín Hospital University, 35020 Las Palmas, Canary Islands, Spain.

<sup>5</sup>La Paterna Medical Center, 35013 Las Palmas, Canary Islands, Spain.

<sup>7</sup>Canary Institute for Cancer Research (ICIC).

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**Running head:** Effect of ozone therapy on blood flow

## **ABSTRACT**

**Background and objective:** Currently, ozone therapy is being used to treat ischemic disorders but the underlying mechanisms for the success are not well known. This study assesses the effect of ozone therapy on middle cerebral artery and common carotid artery blood flow.

**Patients and Design:** Seven study subjects were recruited for therapy performed with ozone-enriched autologous blood transfused on three alternate days over one week. Common carotid artery blood flow quantification (n = 14) was by color Doppler. Systolic and diastolic velocities in middle cerebral artery (n = 14) were by transcranial Doppler. Ultrasound assessments were conducted at three time-points: 1) basal (before ozone therapy) 2) after the 3<sup>rd</sup> session of ozone therapy 3) one week after the 3<sup>rd</sup> session of ozone therapy.

**Results:** Relative to baseline, common carotid blood-flow was increased by 75% after the 3<sup>rd</sup> session of ozone therapy ( $p < 0.001$ ) and by 29% one week later ( $p = 0.039$ ). In middle cerebral artery the systolic velocity was increased by 22% after the 3<sup>rd</sup> session ( $p = 0.001$ ) and by 14% one week later ( $p = 0.035$ ), while diastolic velocity was increased by 33% after the 3<sup>rd</sup> session ( $p < 0.001$ ) and by 18% one week later ( $p = 0.023$ ).

**Conclusions:** These measurements support some clinical experiences of improvement with ozone therapy in peripheral ischemic syndromes. Its potential usefulness as a complementary treatment in neurological vascular syndromes merits further clinical evaluation.