DODECAFLUOROPENTANE EMULSION IN ACUTE ISCHEMIC STROKE, A PHASE 1b/2 RANDOMIZED AND CONTROLLED TRIAL


University of Arkansas for Medical Sciences, Little Rock, AR.

**Phase 1b/2 Trial**

**Introduction**

In Acute Ischemic Stroke (AIS) the effective therapeutic window remains very short for the vast majority of patients and severely limits those who qualify for acute therapy. The oxygen transporting nanodroplet Dodecafluoropentane Emulsion (DDFPe) (NuvOx Pharma, Tucson, AZ) given IV within 3h of onset can reduce AIS symptoms and stroke volumes markedly in animal studies and may widen the window significantly for therapy. Fig 1.

**Methods**

AIS patients with NIHSS of 2-20 were randomized to either 3 doses of IV DDFPe or placebo, one every 90 minutes, starting within 12 hours of symptom onset. Doses were given as soon as possible between unmodified standard stroke care elements. Each dose cohort included 8 patients, with 2 receiving placebo and 6 DDFPe. Primary outcomes were SAEs, AEs, NIHSS values, and mRS.

**Results**

No Dose Limiting Toxicities were encountered and no maximum dose defined. One unrelated delayed death occurred in the DDFPe group and one in the placebo group. SAEs and AEs were of similar incidence in test and control groups and did not increase with dose. None were related to the drug. Headache, hypertension and cough, 5 of 24, were most common. Exploratory aims show early DDFPe treatment had better NIHSS values at 4.5h than late doses, p=0.03. Fig 2. In high dose DDFPe cohort mRS outcomes suggested improvement p=0.01 at 30 days and p=0.03 at 90 days. Fig 3, 4.

**Conclusion**

IV DDFPe appeared safe at all tested doses. No MTD was defined. Exploratory Aims suggest that early DDFPe treatment improves NIHSS quickly and high dose DDFPe patients suggested improved outcomes. Larger trials are warranted.

**References**


**Figure Legends**

Fig. 1 Successful Rabbit Delayed Reperfusion with DDFPe

Fig. 2 Early DDFPe vs Late DDFPe, NIHSS

Fig. 3 Clinical Outcomes, mRS

Fig. 4 Clinical Outcomes, 90 day mRS

**DISCLAIMER**

- DDFPe is not FDA approved and UAMS, Dr. Culp, and Dr. Skinner have a patent pending on its use.
- General support by several UAMS grants and NIH R01 HL082481.
- Specific Funding by the J. S Fitch Distinguished Chair in Stroke, The Fund to Cure Stroke, and NIH UL1TR000039.