

## Pharmacological Models for Short Term Memory Deficiency in Alzheimer 's Disease: First Scopolamine Then Diazepam?

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Received date: June 28, 2017; Accepted date: June 30, 2017; Published date: July 05, 2017

Citation: Tarnow E (2017) Pharmacological Models for Short Term Memory Deficiency in Alzheimer 's Disease: First Scopolamine Then Diazepam?. Dual Diagn Open Acc Vol.2 No.2: 32.

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### Clinical Image

The signature of a drug or disease on the serial position curve of free recall is the item-by-item difference compared with placebo. Early Alzheimer's disease (average MMSE=26) has one signature, a positive slope, and somewhat later (average MMSE=20) a zero slope (Figure 1). The free recall signatures of scopolamine and diazepam are shown in (Figures 2 and 3), respectively. Scopolamine shows a positive slope, and diazepam, a zero slope. In the limited context of free recall, scopolamine acts as pharmacological model of early Alzheimer's disease and diazepam of later Alzheimer's disease [1-4].

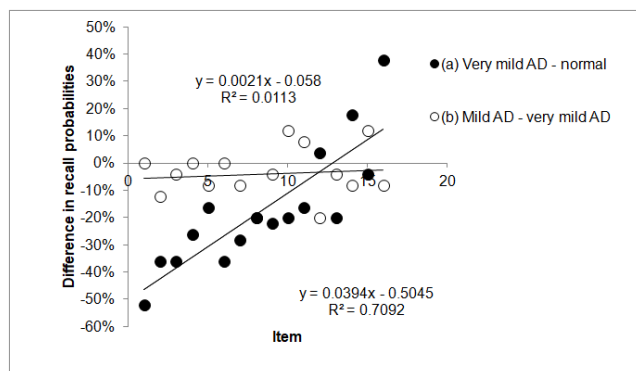


Figure 1: Changes in the free recall serial position curve as Alzheimer's disease progresses from normal to very mild (MMSE<24) and very mild to mild (MMSE ≥ 24).

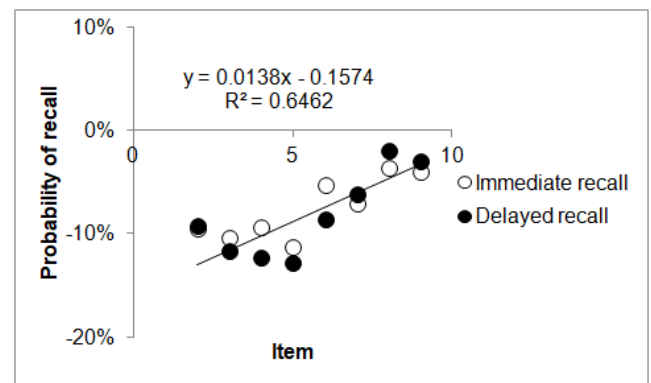
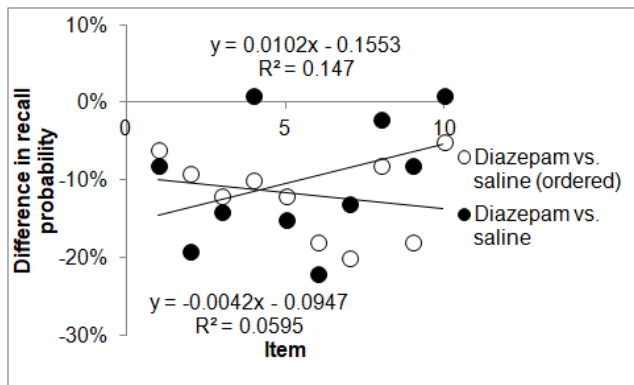


Figure 2: Top panel- Change in serial position curve from scopolamine (intravenous 5.7 Mg/kg) in a serial recall experiment (Frith et al. 1984) scored with and without order information. The signature is similar to early AD. Bottom panel: Change in serial position curve from scopolamine (intravenous 0.4 mg) from Crowe & Grove-White (1973). The signatures are the same for the two conditions in each experiment. Note the medium R2.



**Figure 3:** Change in serial position curve from diazepam only (intravenous 5.7 mg/kg) in a serial recall experiment (Frith et al. 1984) scored with and without order information. Note the low R2.

## Reference:

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