A1

VOLUNTARY INTAKE OF ETHANOL BY THE RAT: DIFFERENTIAL RESPONSE AS A FUNCTION OF SEX AND STEROIDAL INTERVENTIONS. F.S. Messiha and J. Webb, Departments of Pathology and Psychiatry, Texas Tech University Health Sciences Center, School of Medicine, Lubbock, Texas 79430.

Voluntary drinking of 5% ethanol (ET) solution was the experimental model used to evaluate the relationships between steroidal hormones and ET consumption in the male and in the female rat. Preference to ET was greater in males than in females ($p<0.01$) and female rats with preference to ET consumed less ET, g ET/24 h ($p<0.01$) or g ET/body weight ($p<0.05$), than the male rats. No significant changes in ET drinking profile can be established as a function of estrus cycle. Acute administration of estrogenic compounds as estradiol, 0.1 mg/kg, or ethinyl estradiol acetate 0.1 mg/kg, given by mouth once daily for 5 consecutive days markedly decreased voluntary ET drinking in the male ($p<0.01$) and in the female ($p<0.01$) rat. Concomitantly, there was an increase in water drinking ($p<0.01$). Oral administration of tamoxifen citrate, 2mg/kg, once daily for 5 days decreased voluntary intake of ET during drug treatment in the male ($p<0.02$) but not in the female rat. The results suggest sex differences in ET preference and indicate that voluntary consumption of ET is altered by administration of estrogenic and related steroids.

A2

DOUBLE-BLIND COMPARISON STUDY OF THE V1-100 AND VEHICLE DURING WITHDRAWAL IN ETHANOL CONSUMING SINCLAIR (S-1) MINIATURE SWINE. Tumbleson, M.E., Geisler, R.W., and Dexter, J.D., University of Missouri-Columbia, Medical School and College of Veterinary Medicine, Columbia, Missouri.

12 one-year-old boars (25-50Kg) were individually housed and allowed ad lib access to fresh drinking water. Dietary alcohol was presented ad lib as commercial beer fortified to 10% (W/V) ethanol in beer. After 7 weeks of ethanol consumption the animals were withdrawn from ethanol, during withdrawal the animals were divided into two groups which were balanced for ethanol consumption levels. Group I was given 1.5ml/Kg of V1-100 oil daily, Group II was given 1.5ml/Kg of sesame oil. The drug and placebo oil was administrated twice daily between 0600-0800 hrs. and 1600-1800 hrs. for the 7 day withdrawal period. During the 7 day withdrawal period the animals were observed 4 times daily during days 2 through 4 and 2 times daily during days 5 through 7 for the quantification of withdrawal signs. The withdrawal was scored on a 1 to 4 scale of increasing severity. The mean ethanol consumption for the consumption period was V1-100 group 6.3 @ 1.18 gm/Kg/day, control 6.21 @ 1.73. The mean withdrawal scores for days 2 through 4 (severest symptoms were as follows (V1-100/control): 0.83/1.67, 0.83/1.5, 0.67/2.83, 1.00/2.83, 1.33/2.67, 1.17/1.5, 0.33/2.33, 0.83/2.17, 1.33/1.0, 1.67/1.67, 1.16/1.16, 0.66/0.83. Days 2 and 3 shows a decrease of signs of withdrawal in those animals treated with V1-100, with no change on day one or days 5-7.

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A3

GRIEF AS A COMPONENT OF ALCOHOLISM: A HYPOTHESIS. T. McGovern, Department of Psychiatry, Texas Tech University Health Sciences Center, School of Medicine, Lubbock, Texas 79430.

A hypothesis related to grief as a component of alcoholism is presented. Depression, primary and secondary, is the most common psychiatric condition identified among the hospitalized alcoholic population. However, it has been argued that something other than depression accounts for the depression-like symptoms found in the overall alcoholic population. Some investigators have been able to distinguish between grief and depression because of a grieving person's ability to determine the source of his loss and resultant sense of apathy, helplessness etc. Das has developed a description of grief which could be applied to the reality of multi-faceted loss associated with alcoholism. He describes grief as a vacuum-like unreal sense of emptiness which a person experiences on losing somebody or something of value. In initial grief the reality of the loss is not faced because of the fear of further pain and, in extreme grief, because of the threat of possible extinction. Facing the loss through active suffering (mourning) restores the person to reality and makes for a clearer demarcation between self and external reality. Alcoholism inflicts a series of devastating losses on it's victims. A profound sense of grief results from such losses, but the sedative action of the alcohol prevents the person from facing the realities associated with the illness. The ability to suffer (mourn) through the grief is absent. Denial, in the active stage of alcoholism, creates a condition resembling neurotic grief. Therefore, recovery postulates the identification of the grief (the losses incurred) and it's resolution through active suffering (mourning).

A4

High Density Lipoprotein Cholesterol in Alcohol Consuming Sinclair (S-1) Miniture Swine. J.D. Dexter, M.E. Tumbleson, H.G. Wilcox and C.C. Middleton, School of Medicine and Sinclair Research Farm, Univ. of MO, Columbia, MO 65212

48 Sinclair (S-1) miniature Swine, Wt. 50 to 60Kg who had been placed in 5 sex balanced groups: Groups I and III were not allowed access to alcohol. Groups II, IV and V were given free access to 10% W/V alcohol and free choice water. Groups II and IV were given water as vehichle and Group V was given beer as vehichle. Groups I, II, and V were given 104gm of protein/pig/day and Groups III and IV were given 54gm/pig/day.

After the animals had been consuming alcohol for 20 months venous blood samples were analyzed for total cholesterol (TC) and high density lipoprotein Cholesterol (HDLC).

GROUP I	N	TC	HDLC	ETOH CONS gm/KG/day
I Male	3	72.4±26.44	34.2± 6.5	
Female	3	101.7±11.2	43.5± 1.1	
II Male	6	94.5±21.3	52.4±14.4	3.33±1.23
Female	6	92.0±12.3	46.6±10.0	1.95±0.85
III Male	3	66.2±10.8	45.4±16.0	
Female	3	92.3±21.3	44.7± 3.4	
IV Male	6	72.4±20.96	48.8±7.42	0.44±0.48
Female	6	104.9±22.6	51.3± 6.0	0.17±0.27
V Male	6	119.8±25.3	77.5±54.0	4.51±1.22
Female	6	107.1±15.7	68.1±20.0	4.39±1.16

The analaysis of these results revealed a very significant difference (<.01) in the control and heavy alcohol consumption groups, Groups I vs V.

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A5

Ethanol, gonadectomy, oral contraceptives and hepatic ethanol metabolizing enzymes in the rat. F.S. Messiha, C.D. Lox, M.W. Heine and J. Webb. Texas Tech University Health Sciences Center, School of Medicine, Lubbock, TX.

Surgical castration (CST) of the male rat induced hepatic alcohol dehydrogenase (L-ADH) and cytosolic aldehyde dehydrogenase (L-C-ALDH) concomitant with inhibition of mitochondrial (M) L-ALDH enzyme possessing high K_m. The K_m of L-ADH was greater in castrates compared to intact males. Ovariectomy exerted no changes on activities of both enzymes while enhanced both body and liver weights. Conversely, decreased body and liver weights were evident in castrated males from controls. The estrogenic compound ethinyl estradiol (EE), 100 µg/kgPO/day x 5 days, inhibited L-M-ALDH of the intact female and CST-males but not of the ovariectomized or the intact male rat. Testosterone administration (100 µg/kgPO/day x 5 days) was devoid of action on liver enzymes studied in the intact and ovariectomized females. Administration of both component of an oral contraceptives combined profoundly decreased voluntary drinking of 5% ethanol solution in the intact female. The results suggest a hepatic-gonadal link and indicate a possible toxic interaction between oral contraceptives and alcohol consumption.

A6

Hepatic metabolic changes in fetal alcohol syndrome: Modulation of rat liver alcohol and aldehyde dehydrogenase. F.S. Messiha, S. Varma, G.W. Seliger and J. Webb. Departments of Pathology, Pediatrics, Anatomy and Psychiatry. Texas Tech University Health Sciences Center, School of Medicine, Lubbock, TX.

Increasing interest in "fetal alcohol syndrome" calls for more detailed metabolic studies. The present study evaluates the effect of maternal ethanol (ET) drinking on hepatic alcohol (L-ADH) and aldehyde dehydrogenase (L-ADH) during various stages of neonatal development. Female rats were maintained on water (controls) or on 10% ET solutions as the only drinking fluid available for 60 days prior to and during pregnancy, until delivery and weaning. The 18 day old fetus, 14 or 21 day old animals were sacrificed and their livers used for the enzymatic study. There was approximately 26% ($p<0.001$) and 20% ($p<0.01$) decrease in fetus and liver weights of experimental ET rats from controls, respectively. Likewise, a significant reduction in both body and liver weights in neonate of ET-drinking animals from corresponding controls. Ethanol intake induced cytosolic L-ALDH ($p<0.01$) in the 14 day old but not in the 21 day old weaning male and female rats. Conversely, ET inhibited ($p<0.01$) mitochondrial ALDH in 21 day old animals but not during the initial 14 day period of development. A moderate induction ($p<0.05$) of L-ADH occurred only in 21 day old males as a function of maternal ET drinking. The results indicate differential developmental metabolic effects as toxicological indicators for "fetal alcohol syndrome".