If a similar interpretation is adopted to account for metal-ion induced potentiation of the AVP activity, the reduced effectiveness of Na^+ and Ca^{++} in the case of AVP could be due to differences in structure of the two hormones. The cyclic neurohypophyseal hormones possess a more rigid solution conformation[15,16] than the linear peptide antiogensin II[17–19], and their topography may therefore be less susceptible to ion-induced perturbations.

Zusammenfassung. Der Effekt von Na^+-, NH_4^+- und Ca^{++}-Ionen auf die Blutdruckaktivität von Arginin-Vasopressin wurde untersucht und mit analogen Experimenten (Val[5]-Angiotensin II-Asp[1]-β-Amid) verglichen. Die Wirkungsweise der Ionen-induzierten Potenzierung von Vasopressin wird diskutiert.

Effect of NaCl, NH_4Cl and $CaCl_2$ on the pressor activity of AVP[a]

Test solution	n	Δ	P	Intergroup p
150 mM NaCl	24	13.0 ± 2.0	<0.001	<0.05
150 mM NH_4Cl	24	6.8 ± 1.9	<0.005	
15 mM NaCl	24	8.8 ± 2.0	<0.001	NS
15 mM $CaCl_2$	24	8.2 ± 2.5	<0.005	

[a] The test solutions consist of 100 ng AVP/ml; Δ represents activity of test solution minus activity of control (100 ng AVP/ml H_2O) in arbitrary U/ml.

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Effect of Dosage of Oestradiol-17β on the Life-Span of the Rabbit Corpus luteum

Luteolysis in the rabbit cannot be clearly ascribed either to a luteolytic factor or to withdrawal of luteotrophic support[1]. Thus the corpora lutea persist until 31 days in the presence of a placental unit[2], evidently solely or partly due to the promotion of oestrogen production[3–5]. In the pseudopregnant doe luteal regression occurs after 14–15 days, and hysterectomy does prolong the life-span to 24 days[6]. However, asynchronous regression of 17 day old corpora lutea may occur even in the presence of the uterus[7,8], an observation which is difficult to explain on the basis of a luteolytic factor. A relationship between oestrogen level and the life-span of the corpus luteum might adequately explain these observations. Thus a 'permissive' level of oestrogen production could be postulated to give a life of about 24 days. Depression of oestrogen levels, perhaps as a result of utilization by the pseudopregnant uterus, would shorten luteal life. In contrast the pregnant uterus or fetoplacental unit, by augmenting oestrogen production, would correspondingly prolong luteal life. We have therefore looked for such a dose-response relationship.

Materials and methods. New Zealand White does, weighing 3–5 kg were used. The oestradiol-17β was administered s.c. in propanediol. All hysterectomies were performed prior to 7 days post coitum (p.c.) unless otherwise indicated. One ovary was examined by laparotomy every 4–5 days and the number, size and location of corpora lutea recorded.

Corpus luteum life in intact and hysterectomized pseudopregnant rabbits treated with oestradiol-17β

Treatment	No. of animals	Oestradiol-17β-dose (μg/5 lbs/day)	Mean corpus luteum life (days + S.E.)
Hysterectomy only	3	–	24.3 ± 0.9
Late hysterectomy days 12, 14, 15, 15, 15	5	–	23.9 ± 1.1
Hysterectomy and oestradiol-17β	3	–	25.3 ± 0.3
Hysterectomy and oestradiol-17β	3	1	35.0 ± 2.9
Hysterectomy and oestradiol-17β	2	2	39.5 ± 6.5
Hysterectomy and oestradiol-17β	3	5	> 56.5 ± 4.5
Hysterectomy and oestradiol-17β	2	10	> 58.5 ± 0.5
Intact + oestradiol-17β	3	–	15.8 ± 1.2
Intact + oestradiol-17β	3	1	15.2 ± 2.1
Intact + oestradiol-17β	2	2	18.4 ± 1.8
Intact + oestradiol-17β	3	5	34.9 ± 2.3
Intact + oestradiol-17β	3	10	> 50.8 ± 2.1

Results. The results are summarized in the Table. It will be seen first that when hysterectomy was performed as late as day 15 p.c. any existing corpora lutea always lasted for approximately 24 days. Second, in both intact and hysterectomized rabbits an increasing dose of oestradiol-17β was associated with an increase in the life span of the corpora lutea. Third, a higher dose of oestrogen was required to maintain corpora lutea in intact animals compared with hysterectomized animals.

Discussion. The reduced effect of oestrogens on the corpora lutea after hysterectomy could result either from lowering of the effective concentration of the hormone by uterine utilization or from reduced competition with an uterine 'lyticfactor'. We know of no data which convincingly favours the hypothesis that a luteolytic factor exists in the rabbit and of data from 3 experiments which are difficult to explain on that hypothesis.

First, however late hysterectomy is performed, if any corpora lutea are still present they always then persist for a total of 24 days. Second, corpora lutea may regress asynchronously[7,8]. Third, by giving two injections of oestrogen (100 µg) at 6 and 30 h p.c. ,the uterus is delayed by 4 days in its development into a progestational state, as judged by histology, uteroglobin production and ability to support embryos[9-11]. However, the corpora lutea appear unaffected and the onset of their regression is not delayed by a corresponding 4 days[12]. To explain this result in terms of an uterine lytic factor, it would be necessary to postulate that the time course of production of such a factor was uniquely unaffected by the delaying treatment.

These considerations lead us to favour the hypothesis that the level of oestrogen support determines luteal life span[13,14]. In this respect the rabbit would resemble more those species such as the mouse where luteal persistence depended on luteotrophic support rather than those species such as the guinea-pig where a luteolytic mechanism was of prime importance.

Résumé. L'effet de différentes doses d'oestradiol-17β sur la durée de vie du corpus luteum a été examiné chez la lapine intacte et pseudogravide hystérectomisée. Une relation directe entre dose et durée de vie observée dans les deux groupes de lapines, mais les animaux hystérectomisés s'avèrent les plus sensibles à l'action de l'oestradiol-17β.

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[15] The authors wish to express their gratitude to Dr. C. E. Adams for his helpful discussion and criticism. MHJ was supported by a Harkness Fellowship from the Commonwealth Fund of New York. The work was supported by N.I.H. grant No. HBO6226-01 to Dr. J. C. Daniel, jr.

Effect of Certain Alcohols on Cytology of Datura *Innoxia* Mill.

Seeds of *Datura innoxia* Mill. contain up to 0.9% total alkaloids, mainly hyoscyamine and hyoscine (Gerasemenko et al.[2]) and are medicinally quite important. These seeds from wild sources at Jammu are poor in quality because of low alkaloid content, which normally varies between 0.12 and 0.22%. In an effort to increase the active principles, Singh and Kaul[6] induced polyploidy in *D.innoxia* by pre-sowing treatment to seeds with ethanol followed by temperature shock. Batikyan et al.[1] exposed the radicles of onion to 23–25 °C and found that mitotic activity of their cells decreases with the increase in the duration of exposure. Consequent to the treatment with ethyl alcohol, Kabarity[3] observed chromosomal aberrations at meiosis in *Triticum vulgare* Vill. while Reiger and Michaelis[4] reported similar abnormalities in the mitotic cells of *Vicia faba* L. Effect of pre-treatment to seeds with normal and tertiary butyl alcohols separately, followed by temperature shock, on the alkaloid content of seeds and general morphology of the plants of *D.innoxia* have been reported earlier by Singh[7] and Singh[8], but no reference to chromosomal behaviour has been found so far. The present work describes the chromosomal modifications in *D.innoxia* consequent to similar treatments given to seeds.

Mature seeds were collected at one time from a single wild clone to ensure genetic uniformity, and divided into several lots. Each lot was separately treated with 9, 12 and 15% aqueous solutions of normal and tertiary butyl alcohols at room temperature (25°) for an hour, washed thoroughly with tap water and kept at 45 °C for 30 mts. One lot of seeds was simultaneously soaked in tap water for 1 h at room temperature to serve as control. Seedlings from all the above sets were separately raised in pans under identical conditions of soil, light and irrigation, etc. The seedlings were subsequently transplanted in beds and plants raised under identical conditions. Flower buds of different sizes were collected in 3:1 Carnoy's solution from promising plants and transferred, after 24 h, to 70% ethyl alcohol. Cytological observations were made in

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