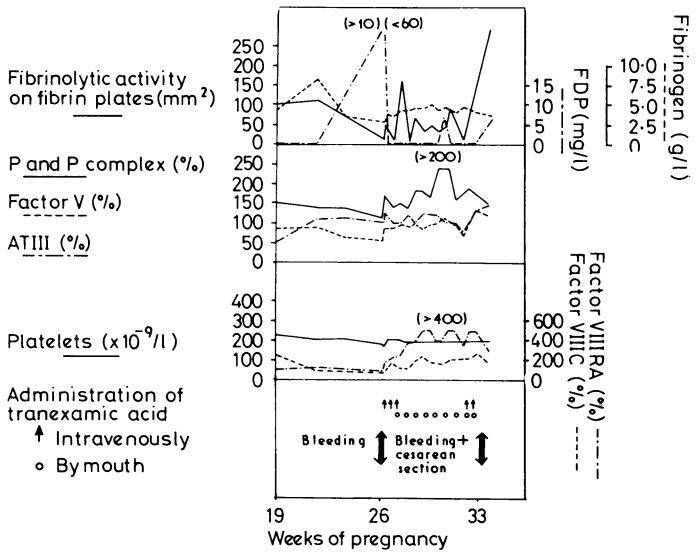

Coagulation factors and fibrinolytic components related to the episodes of bleeding and their treatment. FDP = Fibrinogen-fibrin degradation products. P and P complex = Factors II, VII, and X. AT III = Antithrombin III. Factor VIIIC Factor VIII procoagulant activity. Factor VIIIRA = Factor VIII related antigen.

mouth in a dose of 1 g four times a day throughout the rest of the pregnancy.

During the following weeks the patient felt well. Urinary excretion of oestriol and concentrations of human placental lactogen were normal. The growth of the fetus, monitored by ultrasonic examination of the biparietal diameter, was normal.

In the 33rd week minimal bleeding occurred. Oral administration of tranexamic acid was supplemented by intravenous injections of 1 g every four hours, and the bleeding stopped. Because of the risk of heavier bleeding caesarean section was performed at the beginning of the 34th week. The child was a boy and weighed 1430 g. He was awarded an Apgar score of eight points and has apparently been well since birth. Signs of earlier abruptio were found in the placenta as well as a small fresh coagulum.

Comment

Low fibrinogen and factor V concentrations, increased FDP concentrations, normal platelet count and P and P complex, and a negative ethanol gelation reaction indicated pathological proteolysis with activation of mainly the fibrinolytic system.

The cause of abruptio placenta is unknown. The initial bleeding and formation of haematoma will in turn dissect the placenta from the uterine wall and thereby increase the blood loss. As in our patient, plasminogen activators from the uterine wall might also enter the maternal blood stream and enhance the fibrinolytic activity. Intravenous administration of a potent fibrinolytic inhibitor, such as tranexamic acid, probably has two main effects: it stabilises local haemostatic coagula and inhibits the enhanced fibrinolytic activity of the blood. The oral administration probably prevented further bleeding accidents but was not always sufficient, as shown by the second slight bleeding, which was controlled by intravenous infusions of tranexamic acid.

Abruptio placenta is followed by a perinatal mortality of about 35-50%.[1] Treatment with tranexamic acid in cases of abruptio placenta should depress this mortality rate.

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(*Accepted 10 November 1977*)

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Urinary concentration test with desmopressin

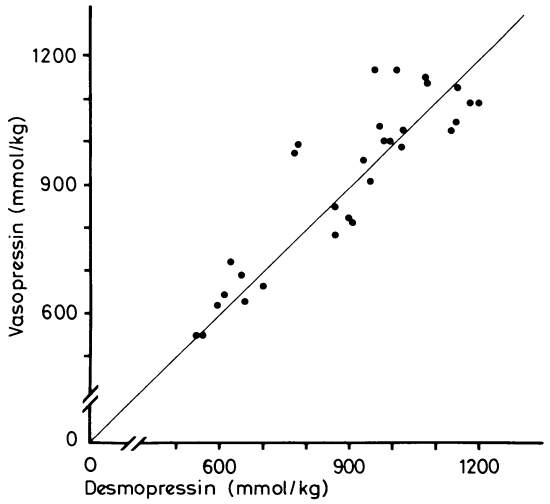
The physiological, and indeed the most potent, stimulus for urinary concentration is water deprivation. Because a test of kidney function based on this principle is unpleasant de Wardener in 1956 designed a test using vasopressin tannate in oil.[1 2]

In the mid-'60s a new modification of the antidiuretic hormone, desamino-d-arginine-vasopressine (desmopressin), was synthesised. The chemical modifications gave the compound a longer half life and deprived it of vasoactive effects, leaving its antidiuretic properties prominent. The drug is now widely used for treating diabetes insipidus.[3] Paediatricians also adopted the drug for urinary concentrating tests after it had been shown to be equipotent to, if not better than, a vasopressin injection.[4] We report here a comparison between desmopressin and vasopressin in adults.

Patients, methods, and results

Seventeen healthy volunteers and 15 patients were studied. Fourteen volunteers participated in two desmopressin tests and 15 underwent a vasopressin test; the 15 patients underwent both a desmopressin test and a vasopressin test.

Desmopressin test—Desmopressin (Minirin) was given intranasally. Each subject insufflated 40 μg desmopressin (0·2 ml in each nostril) using a small plastic tube. The desmopressin was given at 8 am after they had had nothing to drink overnight, and the osmolality was measured in samples taken after one, three, and five hours.



Correlation between maximum urinary osmolality in desmopressin and vasopressin tests. $y = 112 + 0{\cdot}9x$; $r = 0{\cdot}89$; $n = 30$.

Conversion: SI to traditional units—Osmolality: 1 mmol/kg = 1 mOsm/kg.

Vasopressin test—Vasopressin tannate in oil (5 IU) was administered intramuscularly at 8 am. There were no restrictions on drinking before the test, but fluid intake was restricted to 150 ml up to the end of the test. Osmolality was measured in urine produced from 8 pm to 10 pm the same day and between 10 pm and 7 am the next day.[5]

At least two days elapsed between the desmopressin tests and at least five days elapsed between a desmopressin test and a vasopressin test. Urinary osmolality was measured with an Advanced Instruments Osmometer. Statistical significance was tested with the aid of Student's t test in paired comparison tests. Lines were calculated by the method of least squares.

The mean difference between the highest osmolalities obtained in the two desmopressin tests was 25 ± 25 mmol (mOsm)/kg; this was not significant. After desmopressin administration the urine concentration increased rapidly and in many cases reached a peak at one hour. Nevertheless, the mean increase between one and three hours was statistically significant. Between three and five hours there was no further significant increase. The better of the results at one and three hours in the desmopressin test immediately preceding the vasopressin test was compared with the better result in the vasopressin test. The differences in urinary concentration on the two tests were not significant ($P > 0{\cdot}2$; see figure).

Comment

Desmopressin administered intranasally is clearly an adequate alternative to vasopressin for testing maximal renal concentrating capacity. Thus a desmopressin test makes it possible to obtain an accurate measurement of the concentrating capacity of the kidneys in a few hours, which is obviously clinically important. Jones and de Wardener thought that during dehydration there may be a factor other than the antidiuretic hormone which is implicated in urinary concentration.[1 2] It is therefore advisable to standardise the fluid intake before the desmopressin test, and we suggest that no fluids should be allowed after 8 pm the night before the test.

We chose a dose of 40 μg of desmopressin because 20 μg has been used for children with much lower body weights and because a single dose of 30-40 μg has a greater effect on urinary flow and concentration in adults with diabetes insipidus than 20 μg.[3] The administration of desmopressin intranasally is associated with minor technical difficulties and administration of a dose into each nostril increases the likelihood of giving a satisfactory dose.

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(*Accepted 3 November 1977*)

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Motor-cycle scrambling injuries in boys

Motorcycle scrambling is a well-established sport among adults, but a "youth" section has now been formed for boys aged 6 to 16. Because of recent concern[1] over the fact that accidents are the commonest single cause of death in childhood after the first year,[2] I reviewed the injuries sustained by 14 boys in scrambling accidents in 1976-7 to see how dangerous the sport really is.

The sport

Motorcycles are raced around winding hilly circuits over rough ground. The machines are specially modified for this, and they are also made smaller for boys—80 to 125 cc depending on age. Speeds can reach 55 mph on the flat, but it is the skill in negotiating the course that really counts. Often over 100 riders take part in each event.

Patients and injuries

Records were made of the injuries sustained during motorcycle scrambling by boys who were treated in the casualty department, North Lonsdale Hospital, Barrow-in-Furness, during 1976 and 1977. There were 14 victims from a total of 30 races, in which 2766 riders took part. The incidence of injuries was therefore one in 200 rider-races.

Two patients were admitted to hospital. One, who was aged 12, had closed fractures of the tibia and fibula requiring reduction and was kept in hospital for three days. The other, aged 14, was admitted overnight with concussion. The remainder were treated as outpatients (see table). None of the 14 developed complications.

Ages and injuries of outpatients treated in casualty department

Injury	Age (years)	Injury	Age (years)
Fractured clavicle	16	Fracture separation lower fibular epiphysis	14
Fractured clavicle	16	Laceration of chin	14
Avulsed lower lip frenulum	16	Fracture through metaphysis first metacarpal	14
Abrasions of knee and elbow	16	Soft tissue injuries to elbow	14
Minor head injury	14	Soft tissue injuries to shoulder	12
Fracture separation lower radial epiphysis	15	Laceration of chin	10

Comment

This study is of limited scale but shows that the sport is no more dangerous than other childhood activities. An Oxford study[3] of 154 horse-riding injuries requiring admission to hospital showed the dangers of this sport, especially in children. Many injuries were serious and head injuries were common. Poor adult supervision and inadequate protective gear, especially headgear, were partly to blame. In an American study 21 adolescents aged 9-16 years suffered serious injuries while operating minibike motorcycles and go-karts.[4] The victims were all untrained and unsupervised. Even pedal-cycle injuries can be serious.[5]

It is impossible to compare statistically horse riding injuries with motorcycle scrambling injuries. Nevertheless, scrambling has two factors in its favour. Firstly, virtually no height is involved in a fall; the ground is usually soft mud; and one or both feet remain close to the ground during difficult manoeuvres. Secondly, risk of injury is lessened because strict national standards apply to the supervision of races by responsible adults. Adequate instruction is given before a boy begins racing, and regulation crash helmets, riding suits, and riding boots at least protect the head and skin.

Motorcycle injuries in children have not been reported previously. The incidence obtained in this study does not justify this sport being selectively criticised in comparison with other childhood activities.

I thank Mr D Allan for his help and advice and also Mrs S Maxfield for help with records and technical information.

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(*Accepted 24 November 1977*)

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Bubble clicking in pharyngeal aspirates of newborn babies

The idiopathic respiratory distress syndrome (RDS) is the commonest cause of death in preterm babies and is caused by a deficiency of lung surfactant. Surfactant has a low surface tension and its major component is dipalmitoyl lecithin. The lecithin : sphingomyelin (L : S) ratio of amniotic fluid[1] is now often used to predict before birth whether RDS will develop. It has also been measured in pharyngeal and tracheal aspirates.[2]

Bubble clicking occurs in lung foam[3] and is absent in bubbles from the lungs of babies who die from hyaline membrane disease.[4] We first observed clicking in bubbles in amniotic fluid[5] and have now applied the same test to pharyngeal aspirates.

Patients, methods and results

Pharyngeal aspirates were obtained at birth from 102 infants; 54 were born at term and 48 at 25–37 weeks' gestation. RDS was diagnosed if two or more of the following signs were present on the first day of life and lasted longer than 24 hours: respiratory rate greater than 60 per minute; expiratory grunting; and costal, intercostal, or sternal recession. Nineteen babies had RDS according to these criteria. Five babies died and hyaline membrane disease was confirmed at necropsy. The clicking test[5] was carried out on bubbles produced artificially in the aspirate and suspended in air-free water. The bubbles are observed through a microscope, and if the result is positive