effect is delayed by about 30 minutes.[2] Other studies have shown that 20-30 minutes after the introduction of aspirin into the stomach the absorption of substances with molecular weights of up to 70 000 is greatly increased.[1 3 4] Recent evidence suggests that this is also true for other parts of the foregut.[5] The change in permeability permits the development of anaphylaxis to molecules normally too large to cross the gastric mucosa.[1] Anaphylaxis is delayed while the changes induced by aspirin take place.[1]

The sequence of events in these animal experiments was identical with that in our patient's severe reaction. This case suggests that aspirin may potentiate the effect of food allergens in man, probably by increased gastric absorption of macromolecules, and may result in unexpectedly severe and life threatening reactions. Patients who suffer even mild immediate hypersensitivity reactions to foods should be warned that they could suffer a dangerous reaction if they take the offending allergen together with aspirin.

We thank Drs Richard West and Douglas Maxwell for permission to report this case.

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Effect of seat belt legislation on injuries in road traffic accidents in Nottingham

Legislation making the use of seat belts compulsory for drivers and front seat passengers of most cars and light vehicles was introduced in the United Kingdom on 1 February 1983. Experience in other countries suggested that this measure would substantially reduce deaths and injuries to occupants of the front seats of motor vehicles in road traffic accidents.[1] We undertook a survey to assess the impact of the legislation on the number and severity of injuries seen in the accident and emergency department of a large teaching hospital.

Patients, methods, and results

We studied casualty records for the three months immediately before and after 1 February 1983. Injuries sustained by the occupants of vehicles in road traffic accidents were graded in accordance with the abbreviated injury scale,[2] and the injury severity score was calculated.[3] The abbreviated injury scale is an anatomical method of grading injuries to give an objective indication of their severity.[3] The injury severity score gives a total score for all the injuries and acts as a good prognostic indicator of death after blunt (non-penetrating) injury,[4] such as usually occurs in road traffic accidents. All our patients had this type of injury.

A total of 437 patients was studied. The table shows injuries by their anatomical distribution and severity and compares those sustained before and after the legislation. The overall number of injuries fell from 295 to 142 (52%) ($p<0.001$). We classified the degree of each injury according to the injury severity score as mild (0-3), moderate (4-8), or severe (9 or more). There were fewer injuries in all three categories after legislation, the greatest reductions being in moderate (76%) and severe (90%) injuries. Head and facial injuries were reduced to a greater extent than the average (facial injuries by 72%, and head injuries by 63%); neck injuries were reduced by 50%. There was no overall reduction in the total number of chest injuries.

Non-fatal injuries sustained by car drivers and passengers in road traffic accidents in Nottingham before and after seat belt legislation

Severity of injuries*	No of injuries		Fall (%)	Significance†
	Nov-Jan	Feb-April		
	Facial injuries			
Mild	72	24	67	$p<0.001$
Moderate	11	2	81	$p<0.025$
Severe	10	0	100	$p<0.01$
Total	93	26	72	$p<0.001$
	Head injuries			
Mild	66	30	55	$p<0.001$
Moderate	17	0	100	$p<0.001$
Severe	6	3	50	NS
Total	89	33	63	$p<0.001$
	Neck injuries			
Mild	38	23	39	NS
Moderate	3	0	100	NS
Severe	7	1	86	$p<0.05$
Total	48	24	50	$p<0.01$
	Chest injuries			
Mild	19	27		NS
Moderate	4	1	75	NS
Severe	8	1	88	$p<0.025$
Total	31	29	6	NS
	All injuries			
Mild	245	133	46	$p<0.001$
Moderate	29	7	76	$p<0.001$
Severe	21	2	90	$p<0.001$
Total	295	142	52	$p<0.001$

*Assessed with injury severity score.[3]
†Using χ^2 test.

Reductions in moderate and severe injuries were greater than average for all four anatomical sites. Few deaths occurred in the accident and emergency department; the number of deaths for the whole of Nottinghamshire fell significantly from 15 to three (80%) ($p<0.01$). (Statistics of Nottinghamshire road safety department, 1983. Unpublished observation.)

Comment

Many factors other than the use of seat belts influence road traffic accidents. The weather is probably the single most important variable, and we chose to compare these two consecutive three month periods because weather conditions remained reasonably stable from November 1982 to April 1983. The winter of 1982 had been rather more severe, so that a comparison of February to April between the two years would have been less valid.

Compliance with seat belt legislation has been good in Nottinghamshire. Estimates of seat belt use before legislation suggest that 20-40% of seat belts were worn. The figure has now risen to 90%. The patients studied here were not required to state whether they were wearing their seat belts. This was partly because truthful answers could not be guaranteed and partly because the overall effectiveness of the legislation must be judged on its ability to gain compliance as well as on the benefits of compliance. The catchment area of the accident and emergency department remained unaltered throughout the study.

We conclude that the introduction of legislation to make the wearing of seat belts compulsory has been accompanied in Nottinghamshire by a significant and pronounced reduction in the number of deaths and in the number and severity of injuries (particularly to the head and face) sustained by the occupants of cars in road traffic accidents.

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Quality control of home monitoring of blood glucose concentrations

Home monitoring of blood glucose concentrations with reagent strips with or without a meter is widely used in the treatment of diabetics. The accuracy of the reagent strips and meters and the patients' ability to use them can be easily examined in the laboratory, but this gives no information about the quality of the patients' readings at home. We used blood samples on impregnated filter paper[1 2] to examine the reliability of patients' readings at home.

Patients, methods, and results

We asked 24 patients with more than one year's experience of home monitoring of blood glucose concentrations with either BM 20-800 strips (Boehringer Mannheim) or Dextrostix (Ames) in conjunction with the Glucochek reflectance meter (Medistron) to collect an additional blood sample on to filter paper (Whatman 31 ET CHR) each time they made their usual estimation of blood glucose concentration. They did this over two days obtaining a blood glucose concentration profile containing a total of 14 readings, and posted the filter paper strips with their readings to this hospital. Blood glucose concentrations in the filter paper spots were assayed enzymatically using an autoanalyser (Technicon), the within batch coefficient of variation of the method being 5·9%.[2] The home readings of blood glucose concentrations were compared with the laboratory estimates using Spearman's rank correlation, and the correlation coefficient was calculated (table). We defined a satisfactory result as a set of six or more technically acceptable paired samples yielding a correlation coefficient greater than 0·9 over a range of blood glucose concentrations of 8 mmol/l (144 mg/100 ml). Doctors and specialist nurses were asked to rate their patients' expected performances on a scale of 0 to 10; the average score for each patient was then compared with their correlation coefficient (table) by Spearman's rank correlation.

A poor but significant relation existed between performance ratings and the rank correlation coefficients ($p < 0·01$). There were considerable differences between patients, however, and only two (20%) patients using BM sticks gave satisfactory results compared with 11 (78%) of those using Dextrostix and Glucochek (table). Close scrutiny of the individual results showed that poor readings occurred with both low and high glucose concentrations in patients using either monitoring method.

Comparison of home and laboratory estimates of blood glucose concentrations in 24 patients

Case No	Compliance with filter paper technique			Range of blood glucose on filter paper (mmol/l)	Correlation coefficient (r)	Significance
	Unsatisfactory	Missed	Satisfactory			
			BM strips			
1	0	2	12	2·5-15·0	0·89	$p<0·01$
2	0	1	13	2·6-14·8	0·88	$p<0·01$
3	0	0	14	6·1-14·4	0·94	$p<0·01$
4	0	6	8	2·1-18·2	0·90	$p<0·01$
5	3	0	11	3·8-10·5	0·87	$p<0·01$
6	1	0	13	5·5-18·7	0·58	$p<0·05$
7	1	0	13	3·2-12·0	0·97	$p<0·01$
8	2	0	12	4·7-13·6	0·68	$p<0·02$
9	0	0	14	1·8-13·8	0·69	$p<0·01$
10	12	0	2	8·8-19·7	0·64	$p<0·05$
			Dextrostix and Glucochek			
11	0	0	14	2·5-12·1	0·94	$p<0·01$
12	0	0	14	2·4-19·2	0·94	$p<0·01$
13	2	0	12	4·8-13·8	0·87	$p<0·01$
14	3	0	11	2·7-18·0	0·96	$p<0·01$
15	1	0	13	2·5-13·4	0·96	$p<0·01$
16	1	0	13	2·3-15·8	0·96	$p<0·01$
17	6	2	6	2·6-19·9	0·96	$p<0·01$
18	0	0	14	4·4-18·1	0·83	$p<0·01$
19	0	0	14	2·8-10·8	0·96	$p<0·01$
20	0	2	12	2·7-15·0	0·97	$p<0·01$
21	0	0	14	2·3-11·2	0·92	$p<0·01$
22	5	0	9	1·9-15·7	0·97	$p<0·01$
23	8	0	6	3·2-15·0	0·91	$p<0·02$
24	0	0	14	2·8-12·9	0·87	$p<0·01$

Conversion: SI to traditional units—Blood glucose: 1 mmol/l ≈ 18 mg/100 ml.

Comment

This small survey shows the need to review patients with unacceptably inaccurate readings and to check their equipment and method of estimating glucose concentrations to detect and eliminate the source of error. The visual acuity and colour sense of patients making visual readings should also be investigated. Errors may be caused by many things including unsatisfactory blood sampling, use of reagent strips after their expiry date, poorly calibrated meters, inappropriate handling of the strips, chemical contamination, and psychological factors.

To achieve better control of diabetes, therefore, we recommend the introduction of quality control for all patients who monitor their blood glucose concentrations at home.

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