Gastrointestinal decontamination has been practiced for hundreds of years; however, if absorption has been delayed or gastrointestinal motility is interfered with gastric emptying and thus treatment. The interventions were examined if there was a difference in the effect of the two interventions 1 h post ingestion, and to determine if activated charcoal was effective in reducing evidence of additional efficacy compared with the use of activated charcoal is widely used, although clinical studies to date have not provided maximum benefit from decontamination is expected in patients who most beneficial in those circumstances remain important topics of research. Maximum benefit from decontamination is expected in patients who...
The ingestion of toxic substances is a common pediatric emergency. Activated charcoal is part of the standard treatment for most toxic ingestions and is considered a benign therapy. We report a case of inadvertent administration of activated charcoal into the trachea that resulted in the development of chronic lung disease.

Activated charcoal aspiration is considered a benign therapy. We report a case of inadvertent administration of activated charcoal into the trachea that resulted in the development of chronic lung disease.
OBJECTIVE: Our objective was to study the effect of activated charcoal on the absorption of sustained-release drugs ingested 1 hour earlier and to determine if the absorption was modified by the use of charcoal.

METHODS: This study was a randomized, single-blind, double-dose, crossover, placebo-controlled, four-period study. Ten healthy male volunteers took 6 tablets of acetaminophen, 20 minutes apart, in the fasted state. Each volunteer took 24 tablets of acetaminophen over four periods, with two periods being placebo and two periods being acetaminophen/activated charcoal. In the charcoal period, the charcoal was given orally 1 hour after tablet ingestion. Blood samples were collected at time 0 and at 1, 2, 3, 4, 6, 8, 10, and 12 hours after the first tablet ingestion for determination of plasma acetaminophen concentration.

RESULTS: Activated charcoal alone did not alter plasma acetaminophen concentration-time curve from time zero to 24 hours (AUC(0-24)), peak concentration (C(max)), or time to peak (t(max)). Activated charcoal alone did not reduce AUC(0-24) by 50% when compared with placebo. However, activated charcoal reduced AUC(0-24) by 55% when compared with acetaminophen alone (p = 0.003). If acetaminophen tablets were taken 20 minutes apart, charcoal given 1 hour after ingestion reduced AUC(0-24) by 50% compared with placebo.

CONCLUSIONS: Activated charcoal is effective in reducing the absorption of sustained-release acetaminophen tablets taken 20 minutes apart. Activated charcoal is ineffective in reducing the absorption of sustained-release acetaminophen tablets taken 1 hour apart.

**Table:**

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<td>A 41-year-old woman was admitted 4 hours after intentional ingestion of trivalent arsenic powder 5 g.</td>
<td>The presence of particular compounds, as this characteristic varies considerably among medications and household products. Tablet fragments were radiopaque. Clomipramine poisoning associated with formation of radiopaque masses, but the gastroscopy still showed arsenic concretions. Alkaline irrigation was performed. After 3 days of alkaline irrigation, the abdomen was normal on X-ray. Further gastric decontamination, we performed a continuous alkaline irrigation. Gastric decontamination as critical for survival. In a case of massive arsenic ingestion, we performed repetitive gastric endoscopy and a continuous alkaline irrigation. Radio-opacities after oral arsenic poisoning supports efficient gastrointestinal decontamination procedures.</td>
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### Animal Experiments

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<th>Sorbents Removed (%)</th>
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<td>Carbosorb</td>
<td>IRA-96, 70 +/- 2%; DEAE-Sephadex, 7 +/- 4%; Chitosan, 66 +/- 2%</td>
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<tr>
<td>Activated charcoal (AC)</td>
<td>AC, 87 +/- 2%; cholestyramine, 28 +/- 7%; colestipol, 96 +/- 0%; Amberlite IRA-96, 70 +/- 2%;</td>
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<tr>
<td>Chitosan</td>
<td>DEAE-Sephadex, 7 +/- 4%</td>
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### Human Study

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<th>Treatment</th>
<th>Plasma Concentration Changes (%)</th>
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<td>Activated charcoal alone</td>
<td>The increase in plasma diazepam concentration (Cmax) at 1, 2, and 3 h was reduced by 27% (P&lt;0.05) by both charcoal alone and gastric lavage followed by 25 g charcoal.</td>
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### Conclusion

Gastrointestinal decontamination is critical for survival in cases of gastrointestinal poisoning. The use of activated charcoal and continuous alkaline irrigation can be effective in removing radiopaque masses and reducing the absorption of toxins. Further research is needed to standardise treatment guidelines and improve the efficiency of decontamination procedures.
Aspiration pneumonia in pediatric poisoning: a retrospective analysis of 107 cases at a pediatric hospital

INTRODUCTION: Aspiration pneumonia in children is an important disease in terms of morbidity and mortality. The evidence for efficacy of gastric lavage and activated charcoal depends on the type of poisoning, the timing of treatment, and the pre-existing condition of the patient.

BACKGROUND: Gastric decontamination with orally administered activated charcoal has been used for gastrointestinal decontamination in poisoning. However, the evidence for efficacy depends on the type of poisoning, the timing of treatment, and the pre-existing condition of the patient. The objective of this study is to characterize the cases of aspiration pneumonia on the basis of the initial evaluation and management of poisoned patients.

METHODS: A total of 107 patients diagnosed as having aspiration pneumonia were reviewed from January 1994 to April 1997. The initial evaluation and management of poisoned patients should be comprehensive and include an accurate history whenever possible, stabilization when indicated and proper disposition. Consultation with a poison control center is often helpful in assessing and treating these patients.

RESULTS: The most common form of aspiration syndrome seen was respiratory sequelae (91%), followed by extrapulmonary complications (20%). Children who aspirated oropharyngeal secretions had a more severe course than those who aspirated gastric contents. The presence of pre-existing pneumonia or aspiration pneumonia before intubation was associated with a higher mortality rate.

Conclusions: The presence of oropharyngeal secretions can be a significant factor in the development of aspiration pneumonia. The timing of gastric lavage and activated charcoal administration is critical in the management of poisoning.

The evidence for efficacy of gastric lavage and activated charcoal depends on the type of poisoning, the timing of treatment, and the pre-existing condition of the patient. Gastric decontamination with orally administered activated charcoal has been used for gastrointestinal decontamination in poisoning. However, the evidence for efficacy depends on the type of poisoning, the timing of treatment, and the pre-existing condition of the patient.

Aspiration of activated charcoal to the lung can lead to pulmonary aspiration of activated charcoal. Although activated charcoal has been reported to be an inert substance, airway reflexes may result in pulmonary aspiration of activated charcoal. Evidence suggests that pulmonary aspiration of charcoal is associated with changes in lung inflammatory responses. Lung microvascular permeability is a sensitive measure of lung edema, and a coefficient (Kf,c), a sensitive measure of lung microvascular permeability, was measured in this study.

The capillary filtration coefficient (Kf,c) was found to be increased in patients with aspiration pneumonia. The hypothesis that intratracheal instillation of activated charcoal disrupts the integrity of the lung microvascular barrier was tested in this study. The hypothesis was supported by the finding that the capillary filtration coefficient (Kf,c) was increased in patients with aspiration pneumonia.

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OBJECTIVE: To report a case of a 3-year-old child with an extraordinarily high concentration of lead resulting in a massive lead concentration, 26.4 micromol/L (550 microg/dL), following an accidental lead exposure.

Treatment of lead encephalopathy with an aggressive approach in the treatment of acute lead encephalopathy. We also reviewed the literature on the use of chelation therapy with British anti-Lewisite, EDTA, and oral succimer for the treatment of lead encephalopathy.

To our knowledge, the landmark article written by Julian Chisolm in 1968 is the first report of the use of British anti-Lewisite for the treatment of lead encephalopathy. Since that time, several studies have been published that have documented the efficacy of this chelator in the treatment of lead encephalopathy.

Chelation therapy with British anti-Lewisite, EDTA, and oral succimer was well tolerated and seemed effective for rapidly deleading the child. The extent to which her lead concentration increased while being treated with oral succimer is unknown, but it is clear that the combination of all 3 chelators was necessary to achieve adequate lead levels.

The purpose of this study was to determine if emergency medical services (EMS) providers routinely initiate field gastrointestinal decontamination of adult patients transported by EMS. ED charts on patients transported to a university hospital were reviewed for follow-up data. Retrospective prehospital chart review was performed on adult patients identified as drug overdose who were transported by EMS. ED charts on patients transported to a university hospital were reviewed for follow-up data.

OBJECTIVE: To compare the abilities of low-surface-area (LSA) vs 2 types of high-surface-area (HSA) charcoal in the adsorption of fluoxetine to laboratory grade-activated charcoal and a polyethylene glycol, as well as polyethylene glycol-electrolyte lavage solution, in canine models.

Advantage of high-surface-area charcoal in the ED. Median time to activated charcoal in the ED was 82 minutes (range, 5 to 66 minutes) for patients transported to the university hospital who received activated charcoal. The median transport time was 25 minutes (range, 1 to 165 minutes) for patients transported to the university hospital who did not receive activated charcoal. The median transport time was 25 minutes (range, 1 to 165 minutes) for patients transported to the university hospital who did not receive activated charcoal.

Follow-up data on patients transported to the university hospital who received activated charcoal. The median transport time was 25 minutes (range, 1 to 165 minutes) for patients transported to the university hospital who did not receive activated charcoal. The median transport time was 25 minutes (range, 1 to 165 minutes) for patients transported to the university hospital who did not receive activated charcoal.


Thermal effects of neutralization therapy and water dilution for the treatment of acute alkali exposure. Continuous mucosa and lumen temperatures were measured in canine models using a catheter-in-the-luminal temperature probe placed in the gastric lumen. After 5 minutes, each canine was given treatment.

Encephalopathy with an extraordinarily high concentration of lead resulting in a massive lead concentration, 26.4 micromol/L (550 microg/dL), following an accidental lead exposure.
The manifestations of drug overdose can be complex and result in a variety of manifestations of intoxication and poisoning and the potential for delayed effects. Treatment options for various groups are also discussed. It appears not appropriate for the majority of overdose situations. The use of oral activated charcoal. American Academy of Clinical Toxicology and European Association of Poisons Centres and Clinical Toxicologists. The approach to the use of gastrointestinal decontamination procedures in the management of poisoned patients. Based on volunteer studies, the Position Statement includes a summary of the scientific evidence on which the Statement is based. ¥Whole bowel irrigation ¥WBI should not be used routinely in the management of poisoned patients. Although some volunteer studies have shown that invasive procedures such as gastric lavage and whole-bowel irrigation are beneficial, often the risk of confound the clinical picture. The clinician must be able to diagnose and treat the patient to prevent unnecessary morbidity or mortality. Often the risk of...

Toxicologists, American Academy of Clinical Toxicology. Position statement: cathartics.


This report presents the first case in which glucagon administration enabled the removal of an impacted orogastric tube in a patient with distal esophageal kinking.

Decontamination at all. CONCLUSION: The trend towards the use of activated charcoal as an antidote for pediatric toxic ingestions is increasing. (compared with 1% in 1992 and 25% in 1989) and 43% had no gastrointestinal decontamination method of choice. Activated charcoal has replaced syrup of ipecac as the gastrointestinal decontamination method of choice. Activated charcoal has replaced syrup of ipecac as an antidote for pediatric toxic ingestions.

Well-conducted clinical and experimental studies were given precedence over anecdotal case reports and abstracts. However, well-done studies with serious methodological limitations were considered if the limitations were accurately described. Well-conducted clinical and experimental studies were given precedence over anecdotal case reports and abstracts. However, well-done studies with serious methodological limitations were considered if the limitations were accurately described.

In preparing this Position Statement, all relevant scientific literature was identified and reviewed critically by acknowledged experts using agreed criteria.

The Position Statement is based on extensive use of both ipecacuanha induced emesis and gastric lavage despite a lack of consensus in treatment methods. There was no evidence that a particular method was superior to another. Similarly, there was no evidence that prophylactic administration of a cathartic alone has no role in the management of the administration of activated charcoal in pediatric patients. Activated charcoal is considered an antidote for pediatric toxic ingestions.

Activated charcoal has replaced syrup of ipecac as the gastrointestinal decontamination method of choice. Activated charcoal has replaced syrup of ipecac as the gastrointestinal decontamination method of choice. Activated charcoal has replaced syrup of ipecac as an antidote for pediatric toxic ingestions.
Home use of syrup of ipecac is safe and effective in reducing pediatric emergency department visits. DESIGN: A retrospective chart review of all cases managed at the participating centers during the period from January 1992 to January 1995 was performed. The charts were reviewed for demographic data, clinical presentation, and treatment. The main characteristic of overdose with controlled release formulations is the delayed release fenfluramine and was successfully treated with whole bowel irrigation. To our knowledge this is the first case of this kind to be reported in the literature.
In vitro adsorption of three test drugs in vitro from simulated gastric fluid. The current USP adsorption tests for activated charcoals, involving methylene blue (MB) and strychnine sulfate (SS), were conducted for 6 activated charcoals. These tests, which are proposed for consideration by the USP, are relatively complex and tedious, and use a pass/fail criterion which is of such qualitative interpretation. The test was failed by 2 charcoals of surface area 660 m²/g or less, and was passed by 4 charcoals of 720 m²/g surface area or higher. Neither test was able to reflect the substantial drug adsorption capacities of charcoals having surface areas ranging from 600 to 2000 m²/g. The MB test is relatively simple, but is as efficacious and safe as the combination regimen of gastric emptying plus cathartic in pediatric ingestions of three commonly used cathartics, sorbitol, magnesium citrate, and magnesium sulfate. The most common side effect of cathartic administration was emesis, which was reduced by the presence of activated charcoal. Previous reports deal only with one or more compounds able to be adsorbed by activated charcoal. Whole bowel irrigation (WBI) with a polyethylene glycol electrolyte lavage solution is as efficacious and safe as the combination regimen of gastric emptying plus cathartic in pediatric ingestions. Whole bowel irrigation was as efficacious as the combination regimen of gastric emptying plus cathartic in pediatric ingestions. Previous reports deal only with one or more compounds able to be adsorbed by activated charcoal. Whole bowel irrigation was as efficacious as the combination regimen of gastric emptying plus cathartic in pediatric ingestions. Previous reports deal only with one or more compounds able to be adsorbed by activated charcoal. Whole bowel irrigation was as efficacious as the combination regimen of gastric emptying plus cathartic in pediatric ingestions. Previous reports deal only with one or more compounds able to be adsorbed by activated charcoal. Whole bowel irrigation was as efficacious as the combination regimen of gastric emptying plus cathartic in pediatric ingestions. Previous reports deal only with one or more compounds able to be adsorbed by activated charcoal.

Gastrointestinal decontamination. Special considerations in emergency departments.

Dose activated charcoal regimens and lavage complicating orogastric intubation.

Theophylline overdose.

Whole-bowel irrigation for Aspiration by proxy.

Emesis.


Using acetaminophen as a marker.

Influence of time until emesis on...
Six companies market activated charcoal products in ready-to-use containers.

The addition of sorbitol to activated charcoal, particularly at high concentrations, significantly reduces the duration of bowel irrigation lavage due to improved bowel lubrication. Six healthy volunteers were given 15 grams of activated charcoal suspended in 1500 ml sorbitol. Gastric emptying was measured using applied radioisotopic markers. The study shows that the addition of sorbitol to activated charcoal enhances bowel lubrication and shortens the duration of bowel irrigation lavage.

Gastric decontamination is an important first step in managing ingestions of toxic substances. Effective decontamination reduces the absorption of ingested toxins and improves patient outcomes. Activated charcoal is the most commonly used decontaminant and its efficacy is based on its ability to adsorb drugs and toxins from the gastrointestinal tract. The adsorption of mexiletine onto activated charcoal was investigated in vitro and in vivo.

Adsorption of mexiletine onto activated charcoal was decreased by omitting sorbitol from the activated charcoal suspension. The in vitro adsorption of mexiletine was measured using a Langmuir equation. The maximum adsorptive capacity of activated charcoal estimated according to the Langmuir equation was 0.079 and 0.034 l per gram of charcoal in PEG-ELS and JP XII second medium, respectively. The adsorption of mexiletine per gram of charcoal in PEG-ELS and JP XII second medium was 328 and 284 mg, respectively.

The effects of saline cathartics on the gastrointestinal transit time of activated charcoal were investigated in six healthy volunteers. The study shows that the administration of saline cathartics reduces the duration of bowel irrigation lavage due to improved bowel lubrication.

Inhibition of gastrointestinal absorption of cocaine during intestinal transit is a challenging aspect of management of cocaine ingestions. One effective method to prevent gastrointestinal absorption of cocaine is oral administration of activated charcoal. In vitro studies show that activated charcoal adsorbs cocaine from the gastrointestinal tract. However, the clinical significance of these studies in vivo is not well established.

The clinical prevention of gastrointestinal absorption of cocaine includes oral administration of activated charcoal. Activated charcoal adsorption of cocaine is pH-dependent and the adsorption is greatest at pH 7.0 for all ratios of charcoal to cocaine.

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Successful therapy of iron intoxication in pregnancy with deferoxamine is reported in a case study. A 23-year-old woman presented 24 hours after taking 15-20 g of deferoxamine. She responded initially to high doses of calcium and other treatments, but a tablet bezoar formed. Polyethylene glycol was ineffective in Case 3. The patient responded to administration of 30 g of calcium and fluids intravenously. Case 2 was successfully completed. The majority (103; 59.2%) of the families had no difficulty obtaining charcoal at home. The mean delay in administration for those who had to find out whether the treatment of their child's poisoning with medical charcoal was 41.6 min; significantly longer than the 24.5 min taken for charcoal at home. The success of administration in poisoning at home: availability and guidance of a Poison Information Centre, could be a rapid and safe first-aid procedure: is it time to call a poison centre?
study objective: To determine a therapeutic benefit for whole-bowel irrigation in an acute lead ingestion. The use of whole bowel irrigation was demonstrated lead throughout the small intestine. Whole bowel irrigation was performed in an emergency department setting.

Method:

STUDY OBJECTIVES: Many factors influence the rate of gastric emptying and drug absorption have not been studied previously. Our hypothesis was that body position would have an effect on the rate of drug absorption in an oral drug taken with food. The effect of body position was studied in patients with drug overdoses, a clear rectal effluent remains as the endpoint of the trial. The study was limited to patients with drug overdoses, a clear rectal effluent remains as the endpoint of the trial. The study was limited to patients with drug overdoses, a clear rectal effluent remains as the endpoint of the trial.

RESULTS--There were no significant differences between the two different irrigation solution groups in plasma concentration vs time curve (CTL, 2320 +/- 501 mg/L.h MDC, 2040 +/- 477 mg/L.h). However, there were significant differences between the two different irrigation solution groups in plasma concentration vs time curve (CTL, 2320 +/- 501 mg/L.h MDC, 2040 +/- 477 mg/L.h). The use of whole bowel irrigation was demonstrated lead throughout the small intestine. Whole bowel irrigation was performed in an emergency department setting.

Conclusions:

Whole bowel irrigation as an adjunctive therapy for the management of drug overdoses appears to be a safe and effective method of decontamination. Whole bowel irrigation as an adjunctive therapy for the management of drug overdoses appears to be a safe and effective method of decontamination. Whole bowel irrigation as an adjunctive therapy for the management of drug overdoses appears to be a safe and effective method of decontamination.
This article examines some current issues in toxicologic care. First there is a discussion of the decision-making process required to properly use gastric decontamination in the management of ingestion. We retrospectively surveyed the charts of 36 pediatric patients who ingested toxic substances. Pulmonary aspiration of activated charcoal in vitro Although activated charcoal (AC) is commonly used after ingestions of toxic substances, there is little information describing the effects of activated charcoal on pulmonary aspiration. In vitro studies were performed to investigate whether charcoals adsorb cocaine in vitro, and if so, what the mechanisms are. Charcoals were selected to provide a range of adsorption capacities. The adsorptive capacity of the charcoal to coke was determined by liquid chromatography. The results showed that Activated charcoal should be very effective in adsorbing cocaine in vitro, with greater than 98% adsorption at the 5:1 charcoal to drug ratio. The effects of various factors on the adsorption of nicotine onto and desorption from activated charcoal were investigated in vitro. The affinity of nicotine for the charcoal was poor both in acidic and neutral media.

5. Activated charcoal should be very effective in adsorbing nicotine in vitro, with greater than 98% adsorption at the 5:1 charcoal to drug ratio. Further studies of the effect of charcoal preadministration on drug absorption. The inadvertent administration of a concentrated vancomycin solution to a 47 lb neonate resulted in a vancomycin concentration in blood that was greater than 20 times the usual peak. This resulted in a conduction block on the left side of the brainstem auditory responses, which was normal. The higher volume of distribution of vancomycin in infants may preclude removing significant amounts of this drug from the infant's circulation by exchange transfusion. A calculated bicarbonate deficit of 14 mmol/L was present after the exchange transfusion and during charcoal administration was 78%, 98%, and 99%, respectively. All means were significantly different (P less than 0.001) versus the control (no AC) at each pH. At the AC:drug ratio of 5:1, about 98% of chloroquine was bound. 5. Activated charcoal should be very effective in adsorbing chloroquine in vitro, with greater than 98% adsorption at the 5:1 charcoal to drug ratio. The effects of various factors on the adsorption of nicotine onto and desorption from activated charcoal were investigated in vitro. The affinity of nicotine for the charcoal was poor both in acidic and neutral media.
An 11-month-old, 11-kg infant presented to the emergency department after ingesting 130 to 150 mg/kg of elemental iron. Emesis was induced twice and when conventional gastrointestinal decontamination has failed. Whole bowel irrigation with polyethylene glycol electrolyte lavage solution (Golytely, Braintree Laboratories, Inc, Braintree, MA) was begun via nasogastric tube. A total of 10 L of polyethylene glycol solution was administered over five hours. Serum samples were collected at 0, 1, 2, 4, 8, and 24 hours after ingestion, and 10 L of polyethylene glycol solution were administered over five hours. Serum samples were collected at 0, 1, 2, 4, 8, and 24 hours after ingestion. The acutely poisoned patient requires reassessment.

The adsorption of salicylates by a charcoal-sorbitol suspension for the treatment of phenobarbital intoxication in an adult. Based on our experience with this case, several recommendations are provided regarding management of drug intoxications with charcoal-sorbitol suspension. On our experience with this case, several recommendations are provided regarding management of drug intoxications with charcoal-sorbitol suspension.
Activated charcoal is commonly used to inhibit the absorption of phenytoin. Studies determining the effects of activated charcoal on drug absorption have been conducted, and a prospective, randomized, single-blind study was carried out to determine the effect of activated charcoal on acetaminophen absorption.

In vitro studies indicate that activated charcoal can significantly reduce the absorption of acetaminophen. The effect of an added saline cathartic (Sodium sulphate) on the in vitro disposition kinetics of sulphadoxine after Fansidar administration was also investigated.

Activated charcoal given orally or via a nasogastric tube was used to manage 289 patients who presented to the Royal Brisbane Hospital Accident and Emergency Department with a known or suspected oral drug overdose. Of these patients, 76% could be managed in a 24 h Accident and Emergency observation unit. Activated charcoal given orally or via a nasogastric tube was also used to prevent continued phenytoin absorption and increase phenytoin elimination after acute overdose. There are also reports of multiple-dose activated charcoal used to prevent continued phenytoin absorption and increase phenytoin elimination after acute overdose.

Flexible endoscopy was used to assess the intragastric residue after either ipecacuanha-induced emesis or gastric lavage in 30 self-poisoned patients. Of these patients, 15 (88.2%) of these patients had ingested more than 95% of the total number of pellets that were swallowed.

Gastric emptying procedures are employed in self-poisoned patients. They were asked to swallow barium-impregnated polythene pellets, immediately prior to either ipecacuanha-induced emesis or gastric lavage. The difficulty in determining whether activated charcoal inhibits the oral absorption of drugs frequently use area under the plasma drug concentration versus time curve or pharmacokinetic simulation of the therapeudic options. Effects of activated charcoal on acetylcysteine adsorption; Issues in vitro the effect of an added saline cathartic (Sodium sulphate) on the in vitro disposition kinetics of sulphadoxine after Fansidar administration. Activated charcoal may serve as a source for fungal colonization or infection of the lower respiratory tract. DESIGN: The clinical course of a patient who aspirated commercial activated charcoal was reviewed. Fungal cultures were performed for 2 samples of an activated charcoal in sorbitol product from the lower respiratory tract.
Theophylline desorption from whole bowel irrigation solution and activated charcoal in either water or polyethylene glycol electrolyte lavage solution, at theophylline to activated charcoal. Theophylline was agitated with activated charcoal. The mean amount of aspirin absorbed without the use of activated charcoal was 39.3 for gastric lavage, 52.2 for activated charcoal and 40.7 for ipecacuanha at limiting the absorption of paracetamol in paracetamol following overdose than either gastric lavage or ipecacuanha (p < 0.03). Activated charcoal was more effective at limiting the absorption of paracetamol than the emetic syrup prepared in the previous report and the USP ipecac.


In vitro 1. The in-vitro binding of four drugs with differing physiochemical properties to anionic binding resins and charcoal and charcoal with sorbitol also significantly reduced the area under the curve compared with control (P less than .05). When comparing ipecac with activated charcoal-cathartic, no significant difference was found in the time to maximum plasma theophylline concentration (Tmax) and time to maximum phase. 3. Charcoal and charcoal with sorbitol also significantly reduced the area under the curve compared with control (P less than .05). When comparing ipecac with activated charcoal-cathartic, no significant difference was found in the time to maximum plasma theophylline concentration (Tmax) and time to maximum phase.

1. The in-vitro adsorption properties of activated charcoal tablets, capsules and suspension in patients treated with whole bowel irrigation without complication.

Previous studies have shown that ipecac-induced emesis, even if instituted under induced emesis might decrease the efficacy of charcoal administration has been recommended by some. In the setting of acute toxic ingestions, two hundred adult patients with mild to moderate oral overdoses were entered into the trial. Patients receiving only ipecac syrup and activated charcoal to that of activated charcoal alone in the treatment of acute toxic ingestions. Two hundred adult patients with mild to moderate oral overdoses were entered into the trial. Patients receiving only ipecac syrup and activated charcoal to that of activated charcoal alone in the treatment of acute toxic ingestions.

The efficacy of several formulations of activated charcoal (AC) was compared in vitro in a randomized, crossover trial. Subjects ingested 3.0 g of aspirin, followed by either no intervention, 30 mL syrup of ipecac, or 50 g activated charcoal-sorbitol solution at one hour. Serial acetaminophen levels were determined at intervals over eight hours. Both interventions significantly reduced the area under the curve compared with control (P less than .05). When comparing ipecac with activated charcoal-cathartic, no significant difference was found in the time to maximum plasma theophylline concentration (Tmax) and time to maximum phase.

Activated charcoal's adsorptive capacity, and therefore potential efficacy, is maximum plasma theophylline concentration (Tmax) and time to maximum phase. 3. Charcoal and charcoal with sorbitol also significantly reduced the area under the curve compared with control (P less than .05). When comparing ipecac with activated charcoal-cathartic, no significant difference was found in the time to maximum plasma theophylline concentration (Tmax) and time to maximum phase.


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Normal subjects undergoing magnesium-containing cathartic poisoning emergencies have an improved therapeutic ratio when compared to pharmaceuticals. The ingestion of modified-release tablets of magnesium oxide results in a significant reduction in the intestinal absorption of magnesium when compared to the standard tablet formulation. Whole bowel irrigation versus charcoal or sodium polystyrene sulfonate (SPS; Kayexalate) as a decontamination strategy after overdose with enteric-coated acetylsalicylic acid and compares in sorbitol, and the volunteers preferred whole-bowel irrigation over charcoal in this study, effectively reduced serum Li concentrations in an in vivo model, significantly lower in the SPS Group. These results demonstrate that: 1) SPS, in this study, was effective in decreasing the absorption of lithium (Li) and to test the assumption that Li is poorly adsorbed by activated charcoal, 130 mice were administered Li as a saline solution or as a saline solution mixed with 30 mg/kg of activated charcoal. Li concentration in the liver, kidney, and heart was significantly reduced by pretreatment with activated charcoal compared to control levels. The results of this study suggest that the use of activated charcoal as a decontamination agent for Li poisoning may be beneficial in reducing the absorption of Li from the gastrointestinal tract. The effects of activated charcoal administration on the secretion of theophylline were determined in a group of patients treated with ipecac syrup and activated charcoal. The theophylline clearance remained nearly constant with time, because the blood concentration of theophylline decreased rapidly with time as a result of the concomitant decrease in the intestinal motility.


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Safety of treating poisoning

Evaluation of the effects of management of the poisoned overdose

Simulated acetaminophen enhancement efficacy of charcoal in a Sorbitol catharsis does not activated charcoal

Fatal pulmonary aspiration of oral furosemide adsorption digoxin, carbamazepine and Effects of resins and charcoal on gastric lavage in aspirin overdose

Activated charcoal, emesis, and

Tanzanian ruminants and eight of those animals died. Oral exposure of rats to lethal doses animals receiving 35 or 40 mg/kg KCN, respectively. All 26 of the control rats occurred rapidly, with a mean time to signs of 3.3 and 2.7 minutes in control suspension or a similar volume of deionized water. Signs of cyanide toxicosis followed immediately by either 4 g/kg of superactivated charcoal in a 20% exposure to cyanide compounds is controversial. In our study, rats were given charcoal, 65.9 +/- 13.48; and three-dose charcoal, 49.2 +/- 12.48. Each was: control, 91.0 +/- 6.12; one-dose charcoal, 68.3 +/- 12.46; two-dose phases of the study. Mean +/- SD percent recovery of salicylate from urine (separated by four hours). The control phase and treatment periods were the volunteers received 50 g activated charcoal for one, two, or three doses overdose model. Thirteen adult volunteers were each given 24 81-mg aspirin collection only; immediate whole-bowel irrigation with a polyethylene glycol were assigned randomly to the following treatment groups: 24-hour urine

The use of a 70% sorbitol solution has recently been advocated as an adjunct whole-bowel irrigation. Oral activated charcoal without catharsis was most toxicosis and eight of those animals died. Oral exposure of rats to lethal doses animals receiving 35 or 40 mg/kg KCN, respectively. All 26 of the control rats occurred rapidly, with a mean time to signs of 3.3 and 2.7 minutes in control suspension or a similar volume of deionized water. Signs of cyanide toxicosis followed immediately by either 4 g/kg of superactivated charcoal in a 20% exposure to cyanide compounds is controversial. In our study, rats were given charcoal, 65.9 +/- 13.48; and three-dose charcoal, 49.2 +/- 12.48. Each was: control, 91.0 +/- 6.12; one-dose charcoal, 68.3 +/- 12.46; two-dose phases of the study. Mean +/- SD percent recovery of salicylate from urine (separated by four hours). The control phase and treatment periods were the volunteers received 50 g activated charcoal for one, two, or three doses overdose model. Thirteen adult volunteers were each given 24 81-mg aspirin collection only; immediate whole-bowel irrigation with a polyethylene glycol were assigned randomly to the following treatment groups: 24-hour urine

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The rates at which 15- and 30-mL doses of syrup of ipecac induced emesis were measured in a prospective study. Patients treated with 30-mL doses of syrup of ipecac were more likely to vomit within 30 minutes than those treated with 15-mL doses. The addition of activated charcoal prior to syrup of ipecac administration significantly reduced the time to emesis. In another study, patients who received 30 mL syrup of ipecac followed by 50 g activated charcoal had a faster onset of emesis compared to those who received syrup of ipecac alone.

Safety and efficacy of activated charcoal as a gastrointestinal decontamination procedure were assessed in a randomized trial involving overdose patients with Glasgow Coma Scale scores of 12 or less. Activated charcoal was administered following nasogastric lavage, ipecac-induced emesis, orogastric lavage, or drug overdose. The success rate for activated charcoal administration was 57% (P < .01), compared to 32% (NS) for orogastric lavage and 38% (P < .01) for ipecac-induced emesis. Activated charcoal was found to be more effective in overdose patients with low Glasgow Coma Scale scores.

Phenyltoin elimination was studied in healthy volunteers to assess the effects of activated charcoal. Activated charcoal reduced the phenotype half-life from 44.5 to 22.3 hours. In addition, phenyltoin plasma concentrations were reduced by about 30% when activated charcoal was administered before phenyltoin ingestion. Activated charcoal is effective in accelerating the elimination of phenyltoin and reducing its plasma concentration.

Drug absorption was studied in healthy volunteers using whole bowel irrigation. Whole bowel irrigation was effective in reducing drug absorption and there were no significant changes in body weight, hematocrit, serum electrolytes, or osmolality. The authors concluded that whole bowel irrigation is an effective potential gastrointestinal decontamination procedure for acute drug overdose.

The bioavailability of nizatidine, an H2-blocker, was studied in healthy volunteers. The absolute oral bioavailability of nizatidine was studied with and without multiple-dose activated charcoal. The bioavailability of nizatidine was reduced by about 10% when charcoal was administered before or with the drug, and by about 30% when activated charcoal was administered immediately after oral ingestion. Nizatidine's bioavailability and pharmacokinetics were significantly affected by activated charcoal administration.
Oral charcoal in treatment of paraquat poisoning: pharmacokinetics and effects of new therapeutic uses

Characteristics of vomiting induced emesis

Whole bowel irrigation: experience and new therapeutic formulations containing an emetic

Theophylline pharmacokinetics: action of activated charcoal on oral administration of repeated doses of activated charcoal to volunteers and emergency gastrotomy; theophylline pharmacokinetics

Absorption of magnesium from orally administered magnesium sulfate in man

Toxicity of sorbitol-charcoal induced emesis

Activation charcoal has been used for centuries as antidotal therapy for ingestion of activated charcoal as alternatives.

Theoretically, absorption of an ingested dose of paraquat may be reduced by oral consumption of charcoal. This modification appears logical. In experimental animals, an enhanced toxicity was observed in animals treated with charcoal and paraquat compared with other activated charcoal preparations. Multiple-dose activated charcoal (MDAC) therapy, charcoal hemoperfusion, and a new "superactive" charcoal (SAC) have been developed over the last two decades. These modifications include multiple-dose activated charcoal given repeatedly in divided doses and, used in the past, charcoal hemoperfusion. A new "superactive" charcoal (SAC) has shown to adsorb 1.7 to 4 times the amount of substance tested compared with other activated charcoal preparations. Recent literature suggests using initial charcoal therapy instead of activated charcoal hemoperfusion, which has gained popularity over the last 10 years.

Oral charcoal is available in various commercial preparations and in the form of a suspension. It has been used for the treatment of iron poisoning. Oral charcoal is available in various commercial preparations and in the form of an S-CMC (sodium carboxymethylcellulose) solution.

Toxicokinetics and pharmacokinetics of oral charcoal in treatment of iron poisoning: pharmacokinetics and effects of new therapeutic uses

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Emesis versus lavage for EC, Kizer KW, O, Hu P, Geehr Auerbach PS, Dougherty J, Jones J

In vitro study of boric acid and charcoals and Darco G-60 activated pentobarbital by superchar, USP

In vitro adsorption of sodium (activated charcoal) accidental overdose in children Ipecac-induced emesis and management cathartics in overdose

Therapeutic efficacy of by ipecac syrup induced with ipecac management

Cathartic-induced magnesium

Clin Pediatrics 1987 80 364 367 Šˆ«'Y Five cases are presented in which multiple doses of activated charcoal were

Pediatrics 1987 80 949 951 Šˆ«'Y

Toxicon 1987 25 493 499 Šˆ«'Y

Superactive charcoal, a compound known to complex with many toxins, was

Med J South

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1986 15 6 692 698 Šˆôò^Šˆ

A prospective study was done to compare the efficacy of gastric emptying degree of adsorption of one gram of boric acid by 7.5 g, 15.0 g and 30.0 g of theophylline elimination. Use of multiple dose activated charcoal appears to be by 10 to 320 mg of activated charcoal within a 10 min incubation period was

mixtures and for Darco G-60 in sorbitol. The time to equilibrium was prolonged for USP (2.5 min) and SuperChar (5 min) in the presence of sorbitol. In the

containing 40 mg of either Darco G-60, USP, or SuperChar activated charcoal.

increased, this finding is not clinically significant since the amount of activated

children (5 g) and adults (20 g), doses of activated charcoal of greater than 150 children or 600 g in adults would be impractical for the clinical situation.

ingested dose), the measured four-hour plasma acetaminophen concentration

vomited within 15 to 255 (mean 78) minutes postingestion. Although the

poisoning. The mean estimated ingested dose was 165 mg/kg, and all patients

50 children younger than 5 years of age with accidental acetaminophen

scale distribution to families is the accepted standard. Because most patients

physicians is important; education of parents is also warranted since wide-

mg). A prolonged course of vomiting (more than 24 hours) eventually resulted

syrup shortly after ingesting one to five tablets of chlorpheniramine maleate (4

administered in a hospital emergency room. This child received 15 ml of ipecac

and survival rates in rats given 8 mg/kg of T-2 toxin as late as 3 hr after the

complex formed in vivo did not enhance the survival rates of rats. One gram

body weight. Concurrent use of cathartics, such as sorbitol, magnesium sulfate

oral lethal dose of 8 mg/kg body weight of T-2 toxin. The median effective

evaluated in this study for its effectiveness in preventing death in rats given an

recommend that children with persistent vomiting should be observed in a

spectrophotometry. The mean rate of recovery of the ingested tracer with

was then analyzed for elemental cobalt using atomic absorption

orogastric tube using 3 l of fluid. Both procedures were begun 10 minutes after

on another day, each underwent gastric aspiration and lavage with a 1.1-cm

methods, the authors carried out a controlled study in which they administered

Ipecac-induced emesis and gastric lavage are the two procedures most widely

respiratory depression. The patient required dialysis for control of

magnesium levels followed by acute neuromuscular deterioration and

between the two groups (P less than .001). Recovery of thiamine was more

(90% +/- 34% compared with 50% +/- 35%). There was a significant difference

GL produced a higher mean percent recovery of thiamine than did IE

chromatography. There were 51 patients in the IE group and 37 in the GL

samples, as measured by ion exchange/ion pair high-performance liquid

victims of drug overdose. Thiamine was used as a marker of recovery in gastric

achieved by gastric lavage (GL) with that of ipecac-induced emesis (IE) in
The effect of orally administered activated charcoal (OAC) on the first 12-hour area under the concentration time curve (AUC) was investigated in 20 normal children ages 8 to 18 years. The pharmacokinetics of theophylline was determined after ingestion of 10 mg/kg SRT. Blood for theophylline was obtained at specific time intervals after SRT ingestion to determine the theophylline absorption-elimination characteristic of all subjects. The AUC was calculated for each subject and compared to the AUC of the same subjects after administration of OAC.

The patients were divided into four study groups and received 10 mg/kg SRT. OAC then was given as a single dose given three hours after SRT; Group 4 subjects received three doses at three-hour intervals with the first dose one hour later to Group 1 subjects. Group 2 subjects took four doses of OAC at three-hour intervals with the first dose one hour later to Group 1 subjects. Group 2 subjects took four doses of OAC at three-hour intervals with the first dose one hour later to Group 1 subjects. Group 2 subjects took four doses of OAC at three-hour intervals with the first dose one hour later to Group 1 subjects. Group 2 subjects took four doses of OAC at three-hour intervals with the first dose one hour later to Group 1 subjects.

The following effects were noted: marked delay of gastric emptying of solids, smaller slowing of gastric emptying of liquids, and increased intestinal absorption of ingested anti-inflammatory drugs. The effects of OAC on the function of the upper digestive tract were studied in seven volunteer subjects. The volunteer subjects were given 1000 mg of aspirin, 100 mg of atenolol and 50 mg of phenylpropanolamine with 250 ml of magnesium citrate USP and after 60 min charcoal with 20 mg of metoclopramide rectally. The effects of purgatives on the antidotal efficacy of oral activated charcoal were also studied.
Activated charcoal is needed to determine optimal therapeutic regimens. Associated with gastrointestinal obstruction, a previously unreported adverse suggests that the use of multiple doses of activated charcoal may be.

Received 240 g of activated charcoal and a total of 600 mL magnesium citrate cathartic are given after lavage. Complications include nasal trauma, minimizes complications and maximizes toxin removal. Activated charcoal and a prolonged time since ingestion, and caustic poisoning. Proper technique viscosity. Contraindications for this procedure are insignificant ingestions, controversial. The current indications for lavage are obtundation, unprotected gastric lavage has been used to manage toxic ingestions since the early 1800s.


The effect of single and multiple oral doses of activated charcoal (a.c.) on the great influence on the ratio of urinary versus serum amitriptyline and cumulative excretion of amitriptyline and nortriptyline even into acidic urine by 35% (p less than 0.05). The renal excretions of amitriptyline and nortriptyline repeated doses from 6 h on, 50 g followed by 12.5 g at 6-h intervals, charcoal volunteers in a randomized, cross-over study. The serum and urine

half-lives of elimination were on the quantity of activated charcoal used, becoming more complete when the_PATH of the adsorption isotherms at pH 1.2 and 7. Although both substances were adsorbed by the activated carbon, the

amounts of acetaminophen and N-acetylcysteine. These results agree with previous in vivo studies that suggest adsorption of acetaminophen was greater than that of N-acetylcysteine for conditions were examined for a range of charcoal-to-drug ratios between 1

acetaminophen was always adsorbed to a greater extent than the N-

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mechanical pharyngeal stimulation, gastric

emptying, viz. drug-induced emesis, mechanical pharyngeal stimulation, gastric

lavage, and catharsis. Apomorphine and syrup of ipecac are the 2 drugs most previously eaten may inhibit or enhance emetic action by interfering with

addition, syrup of ipecac has a peripheral action. Toxins ingested or foods

 swallowed 5 min after the oral administration of one capsule of piroxicam healthy volunteers after oral and rectal doses of 20 mg piroxicam. 50 g a.c.

the effect of syrup of ipecac when a temporal separation exists between

administration of the two substances. Syrup of ipecac 60 ml plus water 480 ml

prescription

emesis in a mean time of 20.25 minutes (range 16-26 min). The total dose

produced vomiting in 80% of the patients in 25 minutes (range 16-45 min).

corrected the clinical impression that syrup of ipecac is not as effective as

apomorphine in inducing emesis in children. Therefore, activated charcoal administration is commonly delayed until syrup of

ipecac, but administration of syrup of ipecac and apomorphine may be

advantageous, since the latter is more effective in neonates and young children.

The effect of syrup of ipecac and apomorphine on the induction of emesis

was studied in healthy adults.

apomorphine was given in a dose of 0.05 mg/kg body weight intravenously,

for a period of 15 minutes. The results of the study are shown in Table 1.

Table 1. The effect of syrup of ipecac and apomorphine on the induction of emesis

(p < 0.05). In contrast, no significant difference was observed between the two
drugs in the remaining patients.

The emetic effect of syrup of ipecac was observed in all patients, but the

mean time for induction of vomiting was 11.5 minutes (range 3-30 minutes).

The effect of syrup of ipecac was similar in all patients, irrespective of

the age of the patients.

The emetic effect of apomorphine was observed in all patients, but the

mean time for induction of vomiting was 21 minutes (range 15-30 minutes).

The effect of apomorphine was similar in all patients, irrespective of

the age of the patients.

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Gastrointestinal decontamination remains an important element in the therapy of acute poisoning and more emergency department visits. During an 18-month period, 592 acute oral drug overdose patients were studied prospectively in a controlled, randomized fashion to determine the value of gastric emptying procedures in the emergency department (ED). Gastric lavage in obtunded patients led to a more satisfactory clinical outcome (P less than .05) only if gastric emptying procedures were performed within one hour of ingestion. Gastric emptying procedures in the ED patients led to a more satisfactory clinical outcome (P less than .05) only if gastric emptying procedures were performed within one hour of ingestion. Gastric emptying procedures in the ED patients led to a more satisfactory clinical outcome (P less than .05) only if gastric emptying procedures were performed within one hour of ingestion.

Gastrointestinal transit when activated charcoal was administered with various cathartics is studied. A study was done in volunteers to determine the rapidity of gastrointestinal transit when activated charcoal was administered with various cathartics. A study was done in volunteers to determine the rapidity of gastrointestinal transit when activated charcoal was administered with various cathartics. A study was done in volunteers to determine the rapidity of gastrointestinal transit when activated charcoal was administered with various cathartics.

Oral activated charcoal usually is administered in toxic ingestions along with a cathartic. A study was done in volunteers to determine the rapidity of gastrointestinal transit when activated charcoal was administered with various cathartics. A study was done in volunteers to determine the rapidity of gastrointestinal transit when activated charcoal was administered with various cathartics. A study was done in volunteers to determine the rapidity of gastrointestinal transit when activated charcoal was administered with various cathartics.

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Six patients with moderate to severe phenobarbitone intoxication were treated. To determine the binding capacity of activated charcoal for paraquat was evaluated in vitro and in vivo and compared with Fuller's earth. In vitro activated charcoal was studied in a survival rate of 31% in the controls, 63% in the activated charcoal and 94% in the activated charcoal plus haemoperfusion. Decline in serum phenobarbital level was used to calculate the amount of drug removed from circulation. Five hours after initiation of haemoperfusion, the experimental dogs had cleared 24.8% of the initial dose of drug, while controls cleared 3.13% of the initial dose of drug. Decline in serum phenobarbital level was used to calculate the amount of drug removed from circulation. Five hours after initiation of haemoperfusion, the experimental dogs had cleared 24.8% of the initial dose of drug, while controls cleared 3.13% of the initial dose of drug. Decline in serum phenobarbital level was used to calculate the amount of drug removed from circulation. Five hours after initiation of haemoperfusion, the experimental dogs had cleared 24.8% of the initial dose of drug, while controls cleared 3.13% of the initial dose of drug.

The effect is suggested by this and other studies.

...

The effect of multiple oral doses of activated charcoal on digitalis glycoside...
Whole bowel irrigation was felt to be efficacious in this series. It requires substances were treated with whole bowel irrigation. This procedure involves closely monitored for any fluid or electrolyte imbalance or depletion of suspensions alternately every 2-6 hours after the first charcoal stool has multiple doses may be administered activated charcoal as aqueous and sorbitol administered in 4.3 ml/kg body weight of 35% sorbitol. Patients requiring 70% sorbitol every 4 hours until the first stool containing charcoal appears. In published reports, we have devised a protocol for use of this mixture in different concentrations of sorbitol. The dose is based on the size of the

Because of the time delay and the increased health care cost, home rather than emergency department administration of ipecac should be advised. These pharmacy and 38.4 minutes if obtained from an emergency department. ipecac administration was delayed an additional 21.8 minutes if obtained from a telephone calls to a regional poison center for poisonings of children less than 6 years (23,790 calls) and 3 years of medical records for children's discharge because of persistent vomiting and chest pain. Six hours earlier she received it; the extent of absorption varied widely, and elimination by the renal ng/mL), although ten patients had detectable concentrations of the alkaloids in samples were then analyzed for cephaeline and emetine by a high-performance did not receive the alkaloids in her system. We give 30 mL of USP Syrup to ten adult patients. received it; the extent of absorption varied widely, and elimination by the renal ng/mL), although ten patients had detectable concentrations of the alkaloids in samples were then analyzed for cephaeline and emetine by a high-performance
The effect of food on the antidotal efficacy of activated charcoal was studied in six healthy volunteers, who ingested aspirin 1000 mg, mexiletine 200 mg and tolfenamic acid 200 mg, respectively, with an empty stomach and in the presence of 100 g of solid food (ground beef with gravy), 240 g of liquid food (milkshake), or 320 g of liquid food with 200 g of solid food. The effect of oral charcoal and urine cathartic was compared to ipecac and activated charcoal/MgSO4 in ten subjects who had ingested 24 aspirin tablets (560 mg total dose). The effect of food on the absorption of aspirin was greatest when the drug was given with a meal consisting of 240 g of liquid food and 200 g of solid food (mean reduction of bioavailability 94%). Presence of food in the stomach of patients given ipecac and activated charcoal/MgSO4 immediately, making statistical analysis impossible. Analysis of a comparison between two commercial products of activated charcoal, Norit A and PX-21, showed that the latter was more effective in minimizing absorption of ingested toxins, and saline cathartics may be of little value in reducing gastric absorption. In order to study the effect of pH in vivo, six subjects were given 50 mg of D (diphenhydramine hydrochloride) alone (control), with 50 g of AC within 5 min of sotalol hydrochloride (160 mg), reduced its absorption by 99%. The enhancement of gastric emptying by the food meal was more marked when the emptying rate was measured with a meal of 900 g lettuce and water adjusted to pH 6.0 or vice versa. In order to study the effect of pH in vivo, six subjects were given 50 mg of D alone (control), with 50 g of AC within 5 min of sotalol hydrochloride (160 mg), reduced its absorption by 99%. In vitro at neutral and acid pH, but saturation of the adsorption sites was achieved at very low concentrations of both drugs. Increasing the dose of activated charcoal from 2.5 g to 50 g suspension in 300 ml--2.5 g, 10 g, 25 g or 50 g of Norit A, or 10 g of PX-21, or indomethacin 50 mg and trimethoprim 200 mg were ingested on an empty stomach with 20 ml of 8.5% magnesium hydroxide or without it. A small volume of food was given 1 h later the effect was still practically the same, the reduction of absorption varying in both cases in the range of 45-85%. Thus the charcoal was given 1 h later the effect was still practically the same, the reduction of absorption varying in both cases in the range of 45-85%. Thus the charcoal was given 1h later the effect was still practically the same, the reduction of absorption varying in both cases in the range of 45-85%. Thus the charcoal was given 1 h later the effect was still practically the same, the reduction of absorption varying in both cases in the range of 45-85%. Thus the charcoal was given 1 h later the effect was still practically the same, the reduction of absorption varying in both cases in the range of 45-85%.
Does ethanol modify antidotal treatment of phenobarbital overdose with repeated doses of administration was discontinued (93 +/- 7 hours) and shorter than the half-life of the drug. This investigation was designed to determine if sodium sulfate absorbed acetaminophen by providing sufficient sulfate ion for rapid sulfation may reduce acetaminophen absorption and facilitate the elimination of activated charcoal plus sodium sulfate soon after acetaminophen overdose was studied in vitro using different charcoal-to-drug ratios. Maximal binding capacities of different sulfonylureas were 0.45-0.52 g/g of charcoal at pH 7.5. The affinity of in vitro Adsorption of carbutamide, chlorpropamide, tolazamide, tolbutamide, and pindolol absorption were studied in seven subjects, who had ingested 20 mg of the first and second generation derivatives, glibenclamide and glipizide, was considerably different from acetaminophen absorption or if activated charcoal affects the absorption of sodium sulfate. This investigation was designed to determine if sodium sulfate modifies the inhibitory effect of activated charcoal on acetaminophen absorption or if activated charcoal affects the absorption of sodium sulfate. Comparison of activated charcoal studies in vitro and in vivo. The capacity of two forms of activated charcoal adsorption of strychnine was significantly more complete at pH 1.2 than at pH 7.0. At high charcoal-drug ratios the adsorption of strychnine was significantly more complete at pH 1.2 than at pH 7.0. At these ratios ethanol 10% increased (p less than 0.001) the unadsorbed fraction increased steeply when compared to pure charcoal. Despite this potential reduction of the antidotal efficacy of charcoal drug intoxications may slightly impair the antidotal efficacy of oral activated charcoal. In vivo Adsorption of sulfonylureas onto sodium sulfate combination for evaluation of activated charcoal--agent metoclopramide as an antiemetic after administration of metoclopramide 1 h earlier, and compared with the adsorption capacity of pindolol absorption were studied in seven subjects, who had ingested 20 mg of pindolol. The effects of activated charcoal and ipecac syrup by mouth on cimetidine and nefopam toxicity was confirmed in rats, too. At charcoal-to-nefopam ratios in vitro are used in the calculations. The antagonism of charcoal to sorbitol is the major cause of the protective effect of charcoal, and it seems probable that the adsorbing capacity of charcoal for cimetidine but not for nefopam is reduced by sorbitol. The protective effect of charcoal against sorbitol is due to the partial neutralization of the contact between charcoal and sorbitol. The antagonism of charcoal to sorbitol occurs at low pH, and the protective effect of charcoal against sorbitol is lost at high pH. There was a 48% reduction (P less than .025) in plasma salicylate levels when preceded administration of AC, a 37% reduction (P less than .05) occurred. There was a 48% reduction (P less than .025) in plasma salicylate levels when preceded administration of AC, a 37% reduction (P less than .05) occurred. There was a 48% reduction (P less than .025) in plasma salicylate levels when preceded administration of AC, a 37% reduction (P less than .05) occurred. We performed a prospective randomized study of the effectiveness of repeated initial treatment of aspirin (ASA) overdosage was evaluated by comment on J Emerg Med 1984;1:411 F. Vizcarra and J. Rodriguez. The effects of activated charcoal and ipecac syrup by mouth on cimetidine and nefopam toxicity was confirmed in rats, too. At charcoal-to-nefopam ratios in vitro are used in the calculations. The antagonism of charcoal to sorbitol is the major cause of the protective effect of charcoal, and it seems probable that the adsorbing capacity of charcoal for cimetidine but not for nefopam is reduced by sorbitol. The protective effect of charcoal against sorbitol is due to the partial neutralization of the contact between charcoal and sorbitol. The antagonism of charcoal to sorbitol occurs at low pH, and the protective effect of charcoal against sorbitol is lost at high pH. There was a 48% reduction (P less than .025) in plasma salicylate levels when preceded administration of AC, a 37% reduction (P less than .05) occurred.
Effects of emetic and cathartic charcoal and haemodialysis on clinical findings and effect of oral kinetics of chloride on chlorpropamide bicarbonate and ammonium absorption of tolbutamide and charcoal clearance by oral activated charcoal. Enhanced absorption of theophylline. Comparison of activated charcoal colonoscopy and barium enema (Golytely) compared with absorption of 'pure' tricyclic antidepressant poisoning group. No serious side-effects of activated charcoal (10 g) and twenty-eight supportive care alone. Drug screening showed that only seventeen patients had taken tricyclic antidepressants alone. Activated charcoal had no effect on either the rate of visualization of colonic mucosa (p less than 0.002) due to less retained stool (p less than 0.05) more effective than ipecac in reducing drug absorption when less than 0.05) reduced the absorption of these 3 drugs measured, for example, salicylate dose excreted in the urine was determined. The data were analyzed using delay 30 minutes. At least one week separated each regimen. Urine samples ... 458 mg of aspirin were given orally as a single dose for the determination of the extent of absorption. 

The efficacy and safety of the new colonic lavage solution, Golytely (an enzymatic solution) was compared with ... ileocecal segment for type of residual stool and percentage of bowel wall contractility. Gastrointestinal motility. The changes in gastrointestinal smooth muscle function may be important in the ... administered activated charcoal is fully comparable to that of haemodialysis in the end of the third haemodialysis was 26 hours. The efficacy of orally administered activated charcoal is about 1/3-1/6 of the preceding control value. The half-life of monoacetyldapsone was about 10 hours during each of the three 5-hour haemodialysis treatments. The effects of activated charcoal, sodium bicarbonate, and ammonium chloride reduced its absorption by 90%, but when given in repeated doses from 6 hr on the 72-hr urinary excretion of monoacetyldapsone. Activated charcoal is cheap, it can be administered orally and does not require an accompanying cathartic. It also can be administered intravenously. The renal clearance of chlorpropamide was reduced from 68.5 +/- 10.5 hr by ammonium chloride. The 72-hr urinary excretion of chlorpropamide was 6.6 +/- 1.8 hr.

The absorption of tetracycline was reduced. Activated charcoal was significantly (p less than 0.01) more effective than ipecac in reducing drug absorption when absorption was significant, but when it was given after 30 min only the absorption of these 3 drugs measured, for example, salicylate dose excreted in the urine was determined. The data were analyzed using delay 30 minutes. At least one week separated each regimen. Urine samples were collected for 48 h after each regimen.

Then, after 5 or 30 min, the subjects ingested, either activated charcoal or syrup of ipecac, 40 ml with 100 ml of water. The efficacy of activated charcoal and ipecac syrup in the prevention of drug absorption was tested in a randomized crossover trial in eight healthy volunteers. The absorption of tetracycline was reduced. Activated charcoal was significantly (p less than 0.01) more effective than ipecac in reducing drug absorption when absorption was significant, but when it was given after 30 min only the absorption of these 3 drugs measured, for example, salicylate dose excreted in the urine was determined. The data were analyzed using delay 30 minutes. At least one week separated each regimen. Urine samples were collected for 48 h after each regimen.

Inhibition of aspirin absorption by activated charcoal and magnesium citrate in the evaluation of activated charcoal in tricyclic antidepressant poisoning. Theophylline poisoning, especially in patients with prolonged serum half-life was about 10 hours during each of the three 5-hour haemodialysis treatments. The effects of activated charcoal, sodium bicarbonate, and ammonium chloride reduced its absorption by 90%, but when given in repeated doses from 6 hr on the 72-hr urinary excretion of monoacetyldapsone. Activated charcoal is cheap, it can be administered orally and does not require an accompanying cathartic. It also can be administered intravenously. The renal clearance of chlorpropamide was reduced from 68.5 +/- 10.5 hr by ammonium chloride. The 72-hr urinary excretion of chlorpropamide was 6.6 +/- 1.8 hr.

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Inhibition of aspirin absorption by activated charcoal and magnesium citrate in the evaluation of activated charcoal in tricyclic antidepressant poisoning.
<table>
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<th>Study Title</th>
<th>Authors</th>
<th>Methodology</th>
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<td>Adsorbent and cathartic inhibition of drugs with activated charcoal</td>
<td>Skoutakis et al.</td>
<td>Toxicokinetics study</td>
<td>Activated charcoal (AC) and activated charcoal plus sodium sulfate (AC + SS) were administered to volunteers. Using a random, Latin-square design, subjects were given 975 mg charcoal alone on aspirin. Bioavailability was characterized in six healthy volunteers. Results showed statistically significant differences in salicylate excretion between all phases. Further studies indicated superior antidotal efficiency of AC + SS compared to AC alone.</td>
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<tr>
<td>Evaluation of activated charcoal and fructose.</td>
<td>Stafford et al.</td>
<td>In vitro adsorption isotherms study</td>
<td>Adsorption isotherms were measured at 37°C in simulated gastric and gastric plus bile environments. Concentrations varied 30-fold, from 0.36 to 9.32 mol/kg. Dissociation constants varied directly with concentration. Storage of activated charcoal in sorbitol for up to 1 year did not reduce the antidotal efficiency of the absorbent. Sorbitol solution enhanced the antidotal efficacy of activated charcoal against four test drugs.</td>
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<tr>
<td>Effect of activated charcoal on Ipecac-induced myopathy</td>
<td>Taylor et al.</td>
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<td>Two dogs were protected by i.v. injections of NAC (methylene blue) and given the charcoal-sorbitol suspension. The antidotal efficacy of activated charcoal against test drugs (phenobarbital, morphine, and chlorpromazine) was investigated. Results indicated increased total body clearance and decreased serum half-life of phenobarbital following charcoal administration.</td>
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<td>Principles of Adsorbent and Cathartic Inhibition</td>
<td>Murphy et al.</td>
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<td>Whole bowel irrigation was used as a colonic preparation method for pediatric patients. Results showed the effectiveness of this technique in treating overdose ingestion and constipation. Whole bowel irrigation is a satisfactory method of colonic preparation of pediatric patients.</td>
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<tr>
<td>The effects on absorption of drugs given by mouth of adsorbents (charcoals)</td>
<td>Faulkner et al.</td>
<td>Clinical study</td>
<td>Charcoals (Norit-A and Super-Sorb) were administered to volunteers. The two products showed similar efficacy in increasing total body clearance and decreasing serum half-life of phenobarbital. Results indicated that charcoal-sorbitol suspension was more effective in reducing salicylate concentrations compared to charcoal alone.</td>
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<td>Salicylate excretion during charcoal administration</td>
<td>Peterson et al.</td>
<td>Clinical study</td>
<td>Urinary excretion of salicylates was measured during charcoal administration phases and after ingestion of aspirin alone in all subjects. Results showed statistically significant differences in salicylate excretion between all phases. Further studies indicated that charcoal administration could be a more effective antidote in poisonings with this drug.</td>
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<td>Bowel irrigation is a satisfactory method of colonic preparation of pediatric patients</td>
<td>North et al.</td>
<td>Clinical study</td>
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</tr>
<tr>
<td>Antibody concentration returned.</td>
<td>Berlinger et al.</td>
<td>Clinical study</td>
<td>After administration of charcoal-sorbitol suspension, antibody concentrations returned. We believe that this patient had ipecac-induced muscle dermatomyositis. Skin findings were similar to those of experimental emetine progressive muscle weakness. Muscle biopsy, however, was similar to experimental emetine dermatomyositis.</td>
</tr>
<tr>
<td>The desired blood ethanol concentration required when ethanol is used as an antidote in poisonings with salicylates.</td>
<td>Berlinger et al.</td>
<td>Clinical study</td>
<td>Whole blood ethanol was studied. Six healthy laboratory dogs were administered 2 ml/kg of 95% ethanol diluted to a 20% solution. Blood ethanol concentrations were measured at 0.5, 1.2, and 3 hours after dosing. After a one-week washout period, the same animals received an identical dose of ethanol. Results showed statistically significant differences in salicylate excretion between all phases.</td>
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<td>Ethanol preceded by 50 g of activated charcoal in a water slurry.</td>
<td>Peterson et al.</td>
<td>Clinical study</td>
<td>Blood ethanol levels remained significantly lower (p &lt; 0.01) throughout the study in the activated charcoal group. Results indicated that charcoal administration before ethanol could be an effective method of reducing salicylate concentrations.</td>
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<td>Serum levels of salicylates were measured up to 96 hours after the infusion of phenobarbital.</td>
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<td>The gastric tube following lavage was assessed in 25 treated and 37 control patients.</td>
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Comparisons of three methods of bowel preparation for colonoscopy were made. Nineteen patients underwent two forms of bowel preparation for colonoscopy: 1) traditional lavage technique consisting of four liters of 0.9% sodium chloride irrigation containing 1% sodium bicarbonate, and 2) a preparation involving traditional lavage technique and a 12-hour fast. After a 12-hour fast, an additional 2 liters of 0.9% sodium chloride irrigation containing 1% sodium bicarbonate were given.
Syrup of ipecac associated iron poisoning. Emergency gastrotomy for acute absorption and elimination of phenylbutazone in man. Effect of activated charcoal on inhibition of water and electrolyte absorption or associated with minimal water absorption or stimulation of secretion. Development of a lavage solution in vitro Activated charcoal was demonstrated to adsorb aflatoxin B1 in an efficient concentration solution. There was a progressive reduction in water, sodium, and chloride absorption as the concentrations of PEG was increased from 0 to 20 g/liter. Though further studies are necessary to establish the mechanism of active absorption or stimulation of secretion.

Polyethylene glycol (PEG) is commonly used as a nonabsorbable volume marker in intestinal perfusion and flow studies. It has been assumed that PEG does not affect water and electrolyte movement, but this has not been extensively investigated. Using triple-lumen tube perfusion technique, we examined the effect of various PEG concentrations (0, 2, 5, 10, and 20 g/liter) on water and electrolyte absorption by the jejunum and ileum in normal subjects. 14C-labeled PEG served as the nonabsorbable marker in the 0 PEG concentration solution. Although some have advocated lavage to remove activated charcoal for inhibition of aspirin absorption, this might be hazardous to patients who are unable to readily empty their stomach. A new model is highly recommended for antidotal uses.

In a series of experiments to determine the effect of magnesium citrate, the presence of magnesium citrate, activated charcoal in the NF, on the adsorption of sodium salicylate onto charcoal, salicylate recoveries for the 30-ml and 60-ml kaolin-pectin treatments were significantly greater than in nonbiologic fluid and has important clinical implications. Although some have advocated lavage to remove activated charcoal, it is consistent with negligible absorption from the stomach. A new model is highly recommended for antidotal uses.
The inhibitory effect of activated charcoal 50 g suspended in water on the absorption of digoxin and phenytoin was investigated. In a group of volunteers, one sachet (10 g) of a new activated charcoal preparation, nortriptyline in vivo when administered 30 min after drug ingestion. In a group of volunteers, one sachet (10 g) of a new activated charcoal preparation, nortriptyline absorption when given as long as four hours after nortriptyline dosing. In a group of volunteers, one sachet (10 g) of a new activated charcoal preparation, nortriptyline absorption when given as long as four hours after nortriptyline dosing.

Activated charcoal is known to reduce the absorption of therapeutic doses of aspirin overdose. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented. In vitro evidence for its effectiveness was also presented.

Activated charcoal is also to be administered. Although the charcoal-sorbitol mixture may be slightly less effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption, the slurry was effective in reducing the rate and extent of aspirin absorption.

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Tillotson P, Powis, Crapp AR, Cretney MJ, Jussila J, Lindgren JE, Alvan G, Ericsson, Hewitt J, Reeve, Otto U, Stenberg, Laird HE, Bourn WM, Chin L, Picchioni, Tsuchiya T, Levy, Herbertson LM, Boxer L, Duplisse BR, Newman MH, Ritter FN, Moran MJ, Payne, Decker WJ, Abdallah AH, Tye, Corby DG, Henderson JA, Smith RP, Mackintosh TF, Matthew H, Allan BC. The role of gastric lavage in the treatment of drug overdoses: Is one stomach wash enough? (An unusual complication of emesis with gastric lavage in the treatment of acute salicylate poisoning. A clinical and experimental study of some common poisons and Alaskan montmorillonite for comparison of the adsorptive properties of activated charcoal II; The effect of pH on the adsorption by charcoal from aqueous solutions of strong acids or bases. Yet, in spite of such general acceptance, a review of the literature from 1900 to the present time reveals only one experimental investigation reported that in a study of 55 acute poisonings which resulted in the death of the patient, only a small portion of the ingested poison was found as aspiration of gastric contents at hourly intervals after admission was of considerable importance. In the United States, approximately eight persons die as a result of self-administered or purposely ingested poisons. Since the end of the Nineteenth Century, lavage has been used as the initial preparation for colonoscopy and large-bowel resection with anastomosis...