The Association of Clinical Pathologists: 94th general meeting

The 94th general meeting was held at the University of Exeter from 9 to 11 April 1975. Abstracts of the scientific communications follow.

Intravascular Coagulation in the Nervous System

W. R. TIMPERLEY and F. E. PRESTON (Departments of Neuropathology and Haematology, Royal Infirmary, Sheffield)

A series of cases is described in which there appears to be a causal relationship between an intracerebral lesion and disseminated intravascular coagulation (DIC). In some cases the intracerebral lesion may have induced the DIC, and in others the intracerebral lesion caused by the DIC in the course of another disease process appears seriously to have affected the outcome of that disease. Cases in which DIC may have been initiated by an intracranial lesion include head injury, cerebral tumour, and intracerebral abscess. Cases in which DIC resulted in pathological damage to the brain during the course of some disease process elsewhere include malignant hyperpyrexia, Crohn’s disease, leukaemia, mucin-secreting adenocarcinoma of lung, carcinoma of prostate, a probable virus infection, acute pancreatitis, renal failure, septicaemia, perinephric abscess, and a pulmonary abscess complicating pneumocnosis. In the latter case the cerebral symptoms closely mimicked a subdural haematoma. A series of patients dying in diabetic keto-acidotic coma is also reported in whom there was occlusion of medium-sized and small vessels in the brain and various other organs. Petechial haemorrhages, infarcts, ischaemic areas, and focal demyelination were seen around many of the affected vessels. One case developed signs of acute pituitary failure during an attack of diabetic ketoacidosis and at necropsy several weeks later, infarcts were seen in the pituitary gland and in other areas of the brain.

Three Studies in Environmental Contamination in a Laboratory engaged in Salmonella Isolation

R. W. S. HARVEY and T. H. PRICE (Public Health Laboratory, University Hospital of Wales, Heath Park, Cardiff)

Environmental contamination is important in salmonella epidemiology. It seemed worth investigating bacteriological aspects of a laboratory environment. In 1974, we examined well over 900 samples containing salmonellas. Inoculated enrichment and plating media are concentrated in certain areas of the laboratory. These were investigated. Materials examined were water in the 43°C water bath used for salmonella enrichment broths, water of syneresis (Collins, 1974) in petri-dishes containing agars on which salmonellas were growing and, lastly, portions of inspissated salmonella cultures dropped on the bench after flaming the inoculating loop.

In 1968, we became aware of contamination of water baths during a quality control exercise. Test material was salmonella-infected dried egg. Many false positive results were reported in this trial. Cross-contamination of samples was obviously involved, but the exact mechanism was doubtful. Subsequent investigation revealed that water in incubating baths became positive for salmonellas after cultures of egg powder had remained in them for 24 hours. Recently, we extended this study and examined water from baths after incubating enrichment cultures of sewage-polluted water. Of 510 bath samples, 55 contained salmonellas. Serotypes found corresponded to those in the polluted water specimens. The danger of cross-contamination of negative samples from incubation in the bath therefore existed. Ideally, material supporting bacterial growth should not come into contact with water containing micro-organisms (Aberdeen typhoid outbreak).

It is our practice to leave certain plates, after incubation, at room temperature for some days to improve colonial differentiation (Harvey and Price, 1974). In these circumstances, fluid is extruded from the agar. We examined this fluid qualitatively and quantitatively. Salmonella counts ranged from 12 organisms/ml to 525 000/ml.

Finally, portions of inspissated salmonella colonies dropped on the bench from a flamed loop were cultured. We examined 257 samples. None contained viable salmonellas.

References


Alcoholic Solutions and other Agents for Disinfection of the Surgeon’s Hands

E. J. L. LOWBURY and G. A. J. AYLiffe (MRC Burns Unit and Hospital Infection Research Laboratory, Birmingham Accident Hospital) Repeated preoperative cleansing of the hands with detergent preparations containing antimicrobial agents (povidone iodine, hexachlorophane, chlorhexidine or Irgasan DP 300) reduced the microbial flora of the skin to a low equilibrium level at about 1% of the pre-treatment level; after a single standard two-minute handwash with a 4% chlorhexidine detergent preparation, skin samplings showed a reduction to about 13% of the pre-treatment level. Much larger reductions (of about 98% after one treatment and 99-99% after a series of treatments) were obtained by vigorous rubbing of 10 ml of 0-5% chlorhexidine in 95% ethanol into the hands, wrists, and forearms, allowing the solution to evaporate to dryness while rubbing. Slightly smaller effects were obtained by the use of 95% alcohol without added chlorhexidine. For repeated use, 1% glycerol was added to the alcoholic solution to prevent excessive drying of the skin. The use of 95% ethanol caused a much greater reduction...
than washing with soap and water in the
numbers of *Staphylococcus aureus* on
the hands of nurses in a skin hospital.
Alcohol and alcoholic chlorhexidine
were well tolerated and much less
expensive than antiseptic detergent
preparations. A large residual antimicrobial
effect was found on the skin after disinfec-
tion with alcoholic chlorhexidine.

Among other agents tested 2% Irgasan
dP 300 (2, 4, 4'trichloro 2'-hydroxy-
diphenyl ether) in a detergent base had a
negligible immediate effect but a cumu-
labative effect on repeated use almost as
great as that of a 4% chlorhexidine
detergent preparation.

When rubber gloves were worn for
three hours after disinfection of the hands
with various antimicrobial preparations
(including 95% ethyl and isopropyl
alcohols), the numbers of bacteria on the
skin, expressed as a percentage of the
pre-disinfection counts, were lower than
the skin bacterial counts obtained imme-
diately after disinfection.

**Laboratory Autoclaves—Dangers and
Safety**

E. H. GILLESPIE AND S. A. GIBBONS (Public
Health Laboratory, Northern General
Hospital, Sheffield) Using a laboratory
downward displacement vertical auto-
clave, the risk of failure to sterilize
discard buckets has been demonstrated.
The use of proper temperature and time
controls can prevent this risk.

Wire baskets or containers with
perforated sides are better than solid
containers.

For sterilizing media in bottles it is
safer to use cotton wool plugs or very
loose caps.

When using sealed bottles one should
not use a simple downward displacement
autoclave but, if used, strict monitoring
of temperatures and times is essential
both in the heating up stage and, espe-
cially, in the cooling stage.

The temperatures in bottles are slow
to rise. Cooling is very slow so that
there could be a danger of attempting to
remove bottles when the fluid tem-
perature is well in excess of 80°C as the
bottles could explode by thermal shock
due to the high internal pressure.

It is suggested that all laboratory
autoclaves should have a load tempera-
ture simulator or similar device to control
automatically the temperature of the
loading during the cycle. For fluid media
sterilization, it is suggested that, in
addition to a simulator, one should con-
sider the use of accelerated cooling to
reduce damage to the media and to bring
the temperature down rapidly and thus
return the internal pressure in the bottles
to a safe level. The opening of the
sterilizer door or lid should be auto-
matically controlled by the load tem-
perature simulator.

In the meantime bacteriologists should
monitor the times and temperatures in
different loads by the use of thermo-
couples and thereby draw up a schedule
for each type of cycle.

**Hepatitis B Antigen Subtypes in North-
West England and North Wales**

HELEN T. GREEN AND G. C. TURNER (Public
Health Laboratory, Fazakerley Hospital,
Liverpool) Serum samples collected
between 1969 and 1974 from 361 HBsAg
positive patients and blood donors in
North-West England and North Wales
were tested for subtyping reactions by an
immunodiffusion method using anti-AD
and anti-AY sera; 318 sera were subtypable
by this method including two of the
uncommon subtype A.

Among symptomless carriers of HBsAg,
subtype AD was predominant and accoun-
ted for 76%; 23% were of subtype AY.
In patients with chronic liver disease
the subtypes were more evenly distributed
with AD 55% and AY 45%. Among
patients with acute hepatitis the distri-
bution of subtypes in post-transfusion
cases was AD 50%, AY 47% and patients
without a history of parenteral exposure
AD 46%, AY 54%. On the other hand,
AY predominated among patients with
hepatitis who admitted an association
with drugs (AD 5%, AY 95%) and those
with a history of injections or tattoos
(AD 15%, AY 85%). All cases of hepatitis
among the staff of a haemodialysis unit
were AY.

These findings are similar to those
reported from other parts of North-West
Europe and North America. When both
AD and AY subtypes are present in the
community they evidently differ in that
AY causes acute hepatitis more readily
than AD, and this difference is most
pronounced when transmission is by
parenteral routes associated with small
amounts of blood.

**Hepatitis B Infection in Families of Hepatitis
B Antigen Carriers**

D. M. JONES, JUDITH M. HELLAWELL, AND
I. W. DYMOCK (Department of Bacteriology,
Withington Hospital, Manchester) To
investigate the degree of transmission of
infection from healthy asymptomatic
carriers of hepatitis B antigen (HBsAg)
the family contacts of 41 such carriers
have been studied. In 23 of the 41 families
there were no other individuals who were
either HBsAg positive or had antibody
to the antigen. Comparing the 18 families
where members other than the index
carrier were either antigen or antibody
positive, this could not be related to the
titre of the antigen in the index carrier,
to the sub-type of the antigen, or to
the presence of cryptic liver disease.
The index carriers showed the usual male
preponderance that is found amongst
HBsAg carriers (32 male, 9 female)
and this distribution itself reduces the
chance of observing the effects of maternal
transmission of virus to children in this
group of carriers. Altogether 93 blood
relatives (parents, siblings, and offspring)
were tested, and nine of these were
HBsAg positive and 15 were antibody
positive (ie, 26%, had evidence of infection
at some time). The sexual partners
(5 male, 24 female) of 29 index carriers
were tested; none of these was HBsAg
positive but seven (24%) had antibody
(25% female spouses, 20% male spouses).
There was therefore no indication that
the infection was spread any more by
sexual contact than by other household
contact, and no indication that the sex
of the carrier was particularly relevant in
the transmission of infection to the
spouse. The family contacts who were
found to be HBsAg positive and presum-
ably also carriers were all blood relatives.
This finding is in agreement with the
suggestion that there may be a genetic
susceptibility to becoming a carrier of
HBsAg. There were 45 children of the
index carriers, and of these 11 were
female and 34 male. This remarkable
male preponderance (p = 0.003) may be
another manifestation of a genetic
trait and was not found in a parallel
group of families where there were no
carriers but where one parent was HBsAg
antibody positive.

**SYMPOSIUM ON SOME MEDICAL HAZARDS OF
COUNTRY LIFE**

**Farmer's Lung**

D. W. R. MACKENZIE (Mycological Ref-
erence Laboratory, School of Hygiene and
Tropical Medicine, London) Farmer's
Proceedings: Alcoholic solutions and other agents for disinfection of the surgeon's hands.

E J Lowbury and G A Ayliffe

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