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LETTER TO THE EDITOR

Inconsistent coroner interpretations of cardiac death in the presence of cannabis in urine

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Dear Editor,

In Ireland, the Coroners Act 1962 is still in place and coroners are relatively autonomous. Coroners may be medical practitioners or lawyers. The Coroners Bill 2007 was never passed into law but did include the office of Chief Coroner whose job entails the provision of leadership and direction in all coronial matters.

In England and Wales, the Coroners and Justice Act 2009 introduced a system of checks and balances with a Chief Coroner who must be a lawyer backed by Medical Examiners. The National Medical Examiner must issue guidance to District Medical Examiners to insure that they carry out their functions in an effective manner.

Northern Ireland still operates with the Coroners Act (Northern Ireland) 1959.

Scottish Law is based in large part on Roman law, and death investigations are carried out by the local public prosecutor called the Procurator Fiscal.

In the era of continuing professional development and accreditation of professional standards and procedures, coroner's law does not explicitly deal with the issue of quality assurance and professional audit in the common law jurisdictions of England, Wales, Northern Ireland, and the Republic of Ireland.

In Ireland, the intention of Section 45 of the new 2007 Coroners Bill, is to allow the Attorney General to order a new inquest after consultation with the Chief Coroner when a problem arises. The only other appeal mechanism is a Judicial Review under Section 62 of the Bill. This is intended to modify a similar section of the Coroners Act 1962, Section 24. In Northern Ireland, the 1959 Coroners Act, Section 14, allows the Attorney General to order an inquest even where a coroner has already held an inquest. The Lord Chief Justice has a role in the regulation of practice and procedure.

In England and Wales, under Section 40 (8) of the Coroners and Justice Act 2009, an appeal to the Chief Coroner may be made to amend a determination or finding. An appeal to the Court of Appeal against a decision of the Chief Coroner may only be made on a point of law under Section 40 (9).

Consistency of interpretation of the same data is important in medical diagnosis. Coroners rely on the accuracy and competence of interpretations by expert witnesses who play an important role in the coronial system. The expert witness has a primary duty to the court rather than the client [1]. The Law Commission Report recommends that the court should rule on the experts' areas of expertise before they give evidence [2]. This is particularly pertinent in evidence from pathologists. Can an expert in histopathology give definitive evidence in biochemical toxicology?

The following cases illustrate the need for quality assurance in relation to coroners court proceedings. These cases involve the finding of cannabinoids in the urine in cases where the decedents died from acute myocardial infarction. The key article linking the triggering of acute myocardial infarction with cannabis smoking is the report that smoking cannabis increased the risk of myocardial infarction 4.8 times over baseline in the hour following the initiation of smoking. The relative risk for the second hour was 1.7 but the 95% confidence interval was 0.6–5.1 [3]. Cannabis declines to about 10% of peak levels in blood within 1–2 h [4]. Positive urine cannabinoids with zero

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blood levels may occur for 5–7 days after inhalation in occasional users. Thus, a negative blood cannabis with a positive urine rules out cannabis as the proximate trigger of acute myocardial infarction. The likely mechanisms for myocardial infarction induced by cannabinoids are the initial increase in sympathetic activity from smoking reflected in an increase in heart rate and blood pressure, arterial vasospasm, and carboxyhemoglobinaemia. These increase oxygen demand and reduce blood supply leading to myocardial ischaemia in some circumstances. Coronary atherosclerotic plaque rupture from vasoconstriction or arterial spasm together with the procoagulation effects of cannabis on platelets will predispose to thrombosis [5]. Cardiac arrhythmias are another feature of cannabis consumption and may play a role in infarction [6, 7].

The following three cases were processed by the same coroner.

Case 1: 39-year-old male cigarette smoker collapsed and died at home. At autopsy, a fusiform clot was found in the left anterior descending coronary artery. Cannabinoids were found in the urine but not in the blood. No other substances were detected. The Coroner's inquest verdict was misadventure due to cannabis causing myocardial infarction [8].

Case 2: middle-aged man collapsed at a doctor's office. Autopsy revealed haemorrhage into an atheromatous coronary artery plaque. Cannabinoids only were found in urine with no toxins in the blood. There was no inquest and the death was recorded as natural.

Case 3: 50-year-old man died following a cardiac arrest. Autopsy revealed thrombosis of the left anterior descending coronary artery with severe three-vessel coronary artery disease. Cannabinoids in urine were again the only toxicology finding. There was no inquest and the death was recorded as natural.

These three cases are very similar, yet death by misadventure is recorded in one and natural deaths in the others. All had myocardial infarction listed as the primary cause.

The pathologist's autopsy report plays a key role in guiding the coroner's determination of the cause of death. The code of practice and performance standards for forensic pathologists mandates a peer review procedure in named circumstances, which includes "other high profile cases as required" [9]. Forensic toxicologists or a medical toxicologist must be included in the case review when there are positive toxicology findings. The code of practice should be revised to include all cases of death involving toxicology to reduce such obvious inconsistencies in data interpretation. The true expert witness in postmortem toxicology is the forensic toxicologist. Coroners must insist on the highest standards and best practice regarding expert advice.

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