Control and the MRC’s Evaluation of Serum Therapy for Pneumonia, 1929–34

‘Be damned to Professors – say I – they are apt to scoop the credit and spare the pains!’ Richard Armstrong, a consultant physician at St Bartholomew’s Hospital (Bart’s) in London, pronounced this opinion on his professorial colleagues in December 1930. The matter in hand was an MRC-supervised trial evaluating serum therapy for pneumonia and Armstrong had no doubt that pragmatic working clinicians were better equipped than academic professors to undertake it. His views did not, however, entirely appeal to the MRC, who, halfway through the trial, deemed it inadequately controlled, and re-structured it in order to impose their own central authority over the idiosyncratic behaviour of Armstrong and his fellow trial investigators.

This chapter examines the serum trial and the conflict it engendered between allowing clinical discretion to individual investigators, and the MRC’s perceived necessity to impose a centralised methodology. The MRC’s decision to ‘better control’ the study halfway through illuminates the concept of ‘control’ as the imposition of regulation and restricted working practices over the individual autonomy particularly cherished by some bedside practitioners.

From laboratory to practice: serum therapy in history

Serum therapy had been developed late in the nineteenth century. It enjoyed a wave of popularity in Germany, followed by the rest of Europe and Britain, in the treatment of diphtheria in the 1890s. The therapy appealed particularly to laboratory-orientated physicians, who regarded it as an exemplar of laboratory and animal work which had produced a practical and clinically beneficial therapy. They portrayed it as no mere specific, stumbled upon by accident, but as a therapy arising from the rational application of scientific discoveries. Paul Weindling, in his analysis of the transition of serum therapy from the laboratory to clinical practice in the 1890s, concludes that these laboratory-orientated physicians ranked serum therapy as one of the first triumphs of laboratory medical research. Michael Worboys, in an investigation of vaccine therapy in Britain prior to the First World War, suggests that the emergence of therapeutic, rather than simply
diagnostic tools from the laboratory served to enhance the whole prestige of laboratory medicine. In its commercial form, therapeutic serum was prepared from that reliable creature with a large circulating blood volume, the horse. Animals were repeatedly inoculated with steadily increasing doses of bacteria of choice – initially with organisms which had been killed by heat and centrifuged to concentrate them, then sometimes with live bacteria as the animal developed greater immunity. Injections of live bacteria had the potential to produce more potent serum, but carried a significant risk of overwhelming the horse with a fatal infection. Once the creature had developed maximal natural protection against the infection, usually after some nine months of repeated inoculations, its blood was withdrawn at intervals and serum – the component of blood once cells have been removed – extracted from it. A physician would inject this therapeutic serum intravenously, conveying into the patient’s bloodstream the ‘immune bodies’ it contained which were capable of countering the pathogenic bacteria.

Although serum therapy appeared to be most effective against infections such as diphtheria and tetanus, in which the causative bacterium produced a pathogenic toxin, workers devoted a great deal of time and enthusiasm during the first three decades of the twentieth century to developing serum which offered direct activity against non-toxin-forming bacteria. The potential benefits were enormous and nowhere more so than in the treatment of lobar pneumonia, described in 1929 by David Murray Lyon, Professor of Therapeutics at Edinburgh, and his colleague William Lamb, as ‘one of the most serious diseases with which the medical man is called to deal.’ Caused by an infection of the lungs and pleura by a streptococcal bacterium – the pneumococcus – the disease classically began abruptly with a fever, shortness of breath, malaise, cough sometimes with bloodstained sputum, pain in the affected portion of the chest, and, frequently, vomiting. After six to ten days the fever would usually abate, often abruptly – the ‘crisis’. Doctors were justified in their respect for the condition – in 1929 around twenty per cent of those who contracted lobar pneumonia died within a few days, and in Britain, it was responsible for the death of one out of every 1,300 of the population every year. By the 1920s, pneumonia had replaced tuberculosis as the second most common cause of death after bronchitis. Older patients were most at risk of dying, the mortality approaching a hundred per cent in the over-seventies, but previously fit young and middle-aged adults also faced considerable danger – which led Lord Dawson in 1931 to lament that: