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7289 P

Transmissibility of the Common Cold. Exposure of Susceptible Individuals Under Controlled Conditions.

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The transmissibility of the common cold has been frequently reported in the literature, notably by Dochez and his co-workers, and by Long and others. The following studies were undertaken to investigate this transmissibility under controlled conditions of environment. For this purpose an air conditioned room at the University Hospital was used. This room, which provides bed-space for 4 to 6 patients, is completely isolated from the outside atmosphere, being provided with its own air completely filtered and maintained at any temperature and humidity desired. It contains also an air lock, which permits ingress and egress with a minimum exchange of outside air, and a special lock, which permits service without any break in isolation of subjects. The air-lock, which receives the same air as is supplied to the room, contains the recording and controlling instruments and quarters for the experimental investigator, who was the only one allowed to enter or leave during the course of the experiment.

The room was maintained at a temperature of 70° to 71° F., dry bulb, and 60° to 62° F., wet bulb, which is a relative humidity of 55%. The air flow is approximately 66 cubic feet per minute, which gives a cooling power of 6 to 7 or within the normal limits of Leonard Hill. Barometric pressures were read daily and checked with those of the Weather Bureau. There is a very slight constant positive pressure due to the air being pumped into the room.

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The experimental subjects were males between the ages of 21 and 40, who by history had 3 or more colds per year, the average being 5 to 6, and who had not had a cold within recent weeks. They were placed in the room in groups of 3 to 5 and allowed to remain between 5 and 8 days as an incubation period to determine their freedom from an early cold. At the end of this period an individual suffering from a common cold, with onset 12 to 36 hours previously, was brought in and allowed to remain for 24 to 48 hours, the contact being such as exists in normal contacts in a home, namely, eating and playing cards together, use of a common drinking glass, being sneezed at and the like. The experimental subjects were then kept another 4 to 6 days in order to have them under observation during the development of any symptoms. In one group of 5 the degree of exposure was carried to the point of contaminating the thermometers just before temperatures were taken. The material used for this purpose was the fresh nasal secretions which ran freely from the nose of an individual with a common cold in about the twenty-fourth hour, the secretions being allowed to dry on the thermometers. They were obtained from the same individual to whom the subjects were being exposed.

Nineteen subjects in 5 groups of 3 to 4 each were so exposed. No common colds or any symptoms referable to a cold were observed in any of the experimental subjects.

Another experiment performed was the inoculation of experimental subjects with material obtained from individuals suffering from a fresh common cold in the first 24 hours. The method used was to collect the nasal secretion from the individual by letting it drip into a sterile container and then to divide it into 2 portions. One portion was then used without further preparation, the second was centrifugalized at medium speed for 10 minutes, just sufficient to clear it grossly, and the clear supernatant fluid was used. Inoculation of the experimental subjects was carried out by putting 2 or 3 drops of the desired material into each conjunctival sac. Bacteriologically, this method is as effective as intra-nasal inoculation and any direct irritation of the nasal mucous membrane is avoided.

There were 2 groups in this series, the subjects in each group being exposed to a different donor and comprising 5 subjects in one group and 4 in the other. Of these 9 subjects inoculated 4 received the untreated nasal secretions; 4 received the centrifugalized material; one received heated uncentrifugalized material (control).

In no instance did any of these 9 subjects develop any symptoms or signs of a common cold and there were no signs of conjunctival

irritation. Five of these subjects had already been exposed to a patient with a cold, and, having developed no symptoms of a cold after an incubation period of 5 days, were then inoculated directly with the nasal secretions of another donor.

Our experiments on a group of 24 presumably susceptible subjects, when kept in an environment arranged for maximum comfort, and exposed to sufferers from a common cold in the early stages, suggest that the common cold is not transmissible under these conditions. We expect to increase the number of subjects exposed and the number of donors to secure results of statistical value. The predisposing factor or factors responsible for the common cold are being investigated.

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Experimental Encephalography with Anesthetic Gases.*

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Dogs prepared by previously performed lumbar laminectomies were found most suitable for experimental encephalography studies. Intravenous sodium amytal was given in sufficient amount to quiet the animal so that it could be handled and X-rayed easily, but not in high enough dosage to obscure painful or possible deeper narcotic effects of the anesthetic gases used for encephalographic injection. A lateral skull plate was first obtained. Then the dog was strapped on its side to a special table, the head end of which could be tilted to a 42° angle and which in all positions allowed maximum opportunity both to manipulate and observe the animal's reactions. Next with aseptic technique and local anesthesia a lumbar puncture was performed. The table was elevated and intermittently between collections of spinal fluid the gas to be tested was injected slowly by syringe into the subarachnoid spaces. Rotation of the head aided drainage. A 3-way petcock attached to the injecting syringe and connected by tubing to the controlling valve

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