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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

MM/Dr Berry

REPLY TO
ATTN OF: MM

Dr. Edward H. Kass
Director, Channing Laboratory
Boston City Hospital
774 Albany Street
Boston, MA 02118

APR 14 1972

Dear Dr. Kass:

I want to thank you again for the tremendous job you and your Ad Hoc Panel did in reviewing the Apollo 15 medical findings, specifically, concerning the cardiac arrhythmias. I especially appreciate the fact that you and your panel not only performed an outstanding review of the medical results but unlike so many other committees, you tackled the hard task of making constructive recommendations which were extremely helpful in our planning for Apollo 16.

I am happy to report that we have been able to respond positively to virtually all but one of your recommendations. We will be making a determination of the urine volume for the first three days in flight by using the technique suggested by one of your panel members, i.e., a timing of each void and estimating the volume based on ground-based measurements of time and volume. This will be done on the first and third days of the flight and we will collect the second day and return it which will be another first in the Apollo Program thanks to your panel's recommendation.

We will be using a controlled diet and fluid intake and output program for the three days pre-launch and postflight as recommended by your group which will insure a very adequate potassium intake as well as stabilizing the crew on a flight similar fluid and food intake program.

We have increased the potassium in the inflight diet and have provided snack foods, high in potassium, for in between meal use assuring us of a 120-150 meq potassium intake per day.

We will be obtaining the highest quality ECG available within the existing air-to-ground system on each astronaut each day as a result of your recommendation for the highest quality ECG obtainable. We are assuring that the ECG electrodes placement will be as exact as operationally feasible by using markings for the placement of the

electrodes on each of the crew members. We have obtained two nights of sleep patterns with these electrode positions and we added EEG on those two nights in the hopes that we might establish an EEG pattern that would correlate with the sleep EEG's.

We are going to obtain the lateral chest X-rays pre- and postflight in addition to the PA position as recommended by the panel. We have deleted the muscle biopsy as recommended by your group.

We have added the drugs recommended by your panel to both the Command Module and LEM, namely, atropine, lidocaine and procainamide.

We have not been able to add the urine concentration test due to operational constraints during the very hectic postflight first 24 hours. There just was not time to do this test without interfering with what we believe were more important requirements for postflight data and the return of the crew to Houston. However, we feel that the return of urine from the flight and our three days pre- and postflight 24 hour pooled collection of urine will provide data that will permit us to determine if we should introduce the concentration test using vasopressin on Apollo 17.

Again, my sincere thanks for your help in this very difficult and intriguing area of our program. I am sure we are both looking forward to the findings of Apollo 16 with the same degree of interest and anticipation and as a result of your recommendations, we should be in a position to know and understand more of what we suspect has been occurring in the physiology of our crews during their flights.

Very sincerely,

Charles A. Berry, M.D.
NASA Director for Life Sciences