from 13 invetigated cases. The extent of this enhancement varied between individuals and was an invert function of the antiproliferative action of naive PBMC. On the contrary, six days preincubation of normal PBMC with the lyophilized healthy PBMC inhibited PBMC their suppressive action towards the survival of both malignant cell lines in vitro in 8 out of 9 investigated individuals.

1455 PUBLICATION

Lyophilized whole melanoma cells and irradiated whole melanoma cells stimulate PBMC suppressive action toward melanoma cells survival

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The most attractive biological approach to eradicate the disseminated neoplasm is the induction of an antitumor immune response. The goal of this work was to compare the potency of stimulating irradiated BG cells and of lyophilized whole BG cells to enhance the peripheral blood mononuclear cells (PBMC) suppressive action on the survival of melanoma BG cells, and to check if there are any specificity in the induction of the antitumor immune response regarding lyophilized melanoma cell lines used for PBMC stimulation, in vitro.

Lyophilization of malignant cells, was done by freezing the suspension of whole cells in nutrient medium (with 10% AB+ human serum) at −80°C. The frost suspension was dehydrated in high vacuum, in lyophilizer. Lyophilized cells did not exclude trypan blue, and were with markedly stained membrane and nuclei. Irradiation of BG cells was done with 30 Gy by x rays (X-6 MV, CLINAC 2100C, Varian). Irradiated BG cells, although exclude trypan blue, were reproductive dead, e.i. they did not formed colonies in vitro. Determination of the antiproliferative action of the untreated (naive), or of six days stimulated PBMC on malignant cells, was done by MTT test.

Results showed that six days stimulation with lyophilized melanoma BG cells enhanced the suppressive action of PBMC towards the survival of the BG cells in five from six investigated cases, in comparison with the action of naive PBMC. Six days preincubation of normal PBMC with the irradiated BG cells led to the increase in their suppression of BG cells survival in two from six investigated cases. Six days preincubation of PBMC with lyophilized BG, or Fem-x cells induced the enhancement of their antiproliferative action toward both investigated cancer cell lines; the extent of this enhancement was an invert function of the antiproliferative action of naive PBMC and was not dependent on the specificity of the melanoma cell lines used.

1456 PUBLICATION

Interferon alpha and its various functional facets in comparison with other cytokines (AC) in an in vitro setting

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Purpose: To study the efficacy of interferon alpha (IFNα) on human tumour cell lines.

Methods: To use colorimetric and biochemical techniques to study the biological activities of IFNα.

Results: 1. Whilst both IFNα and AC upregulated MHC class I antigens, class II antigens were only induced by AC. These results were also demonstrable for intracellular cell adhesion molecule (ICAM-1). 2. Both IFNα and AC increased the killing activity of IL-2-activated mononuclear cells (LAK) cells by as much as 15% percent. In addition, pre-treatment of tumour target cells with IFNα increased their susceptibility to killing. 3. IFNα and AC showed direct cytotoxic effects on some tumour cell lines like Wil (a bladder line). 4. Combination of IFNα and cisplatin showed additive suppressive effects on tumour lines.

The findings of this investigation demonstrated the capacity of IFNα to increase the visibility of tumour cells to the immune system by increasing the expression of MHC class I antigens. The data also demonstrated that IFNα acted at other levels contributing to its overall clinical efficacy.

Supportive care & quality of life

1457 ORAL

Cross-language validation of the Functional Assessment of Cancer Therapy-Anemia (FACT-An) questionnaire

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Purpose: Quality-of-life (QOL) data from a randomized, placebo-controlled clinical trial to assess the effect of epoetin alfa on cancer-related anemia were analyzed to evaluate the measurement characteristics of 6 language versions of the Functional Assessment of Cancer Therapy-Anemia (FACT-An) questionnaire. Classical test theory and modern item response theory were used to test the validity of pooling data across languages to support the investigation of an epoetin alfa effect on QOL.

Methods: The FACT-An includes the FACT-General (G) and the FACT-An Fatigue scales, determined a priori as primary QOL endpoints. FACT-An data in 6 languages (Dutch, French, German, Italian, Portuguese, and English) were available from 317 patients enrolled in the study. Traditional reliability and Rasch rating scale analyses were applied, testing for items performing differently across languages.

Results: Internal consistency was high across all languages for both FACT-An primary endpoints for the study: FACT-G Total score (.83–.91) and Fatigue Subscale (.89–.92). Pairwise language comparisons of item difficulty calibrations revealed only 21 of 200 (10.5%) cases of differential item functioning for the FACT-G and Fatigue items comprising these 2 Rasch measures, enabling the pooling of data for these scales in this multinational study. Other FACT-An scales demonstrated similar consistency.

Conclusion: These results support pooling FACT-An data across languages and demonstrate the value of using the FACT-An as a QOL assessment tool in international clinical oncology trials. These findings substantiate the overall QOL treatment effect observed in this multinational trial.

1458 ORAL

Influenza vaccination in patients with cancer

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Purpose: Influenza is the meet dangerous seasonal infection of our century. Especially patients with compromised immune system are at risk for severe influenza-related complications. Therefore, vaccination is strongly recommended for these patients. However, in cancer patients, outcome of influenza immunisation is often doubted to be sufficient due to anticancer therapy or cancer activity. The aim of this study was to prove if antiviral protection can be achieved by vaccination in patients with malignancies.

Methods: 56 patients with solid tumours or hematologic neoplasms (28 of which underwent chemotherapy) and 45 healthy individuals were immunised with trivalent influenza vaccine (A/Sydney/5/97 (H3N2); A/Beijing/262/95 (H1N1); B/Beijing/184/93). Peripheral blood was sampled before and four weeks after vaccination, and titers were determined by hemagglutination inhibition tests.

Results: After vaccination, 55% of all patients and 87% of the healthy subjects developed a protective titer ($\geq$1:40) against at least one influenza subtype. Interestingly, patients under chemotherapy showed no significantly different postvaccinational titer compared to that of the unseated patient group ($p = 0.6$). However, among patients with solid tumours ($n = 32$), immune responses were higher than in patients suffering from lymphatic neoplasms ($n = 18$, $p < 0.05$). No severe side effects were observed.

Conclusion: The majority of cancer patients developed an appropriate influenza immune response irrespective of concurrent anticancer treatment. These results strongly recommend influenza vaccination for patients with malignancies.